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MILITARY AFFAIRS

MILITARY HISTORY JOURNAL

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USSR REPORT
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No 9, September 1985

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FRONT COMMAND, STAFF METHODS FOR PREPARING OFFENSIVE OPERATIONS

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 9, Sep 85 (signed to press 23 Aug 85) pp 14-19

[Article by Doctor of Military Sciences, Prof, Lt Gen N. G. Popov and Candidate of Military Sciences, Docent, Col V. A. Maramzin, published under the rubric "Soviet Military Art": "On the Question of the Work Methods of Front Commanders and Staffs in Preparing for Offensive Operations During the Great Patriotic War"]

[Text] Preparations for offensive operations during the Great Patriotic War represented an involved range of measures conducted by the commanders, staffs, by the party political bodies, by the chiefs of the branches of troops, special troops and services as well as by the troops in organizing and fully supporting combat operations. The most important of these were: the adopting of a plan; the setting of missions for the troops; planning the operation; organizing cooperation; the preparation of the staffs and the troops for carrying out the set missions; the conducting of party political work and so forth.

The work methods, that is, the practical procedures of the front commanders and staffs, in preparing for the offensive operations were determined by the specific conditions and primarily by the aims of the operation and the combat missions, by the operational-strategic situation, by the time until the start of the offensive, by the teamwork of the staffs as command bodies as well as by the combat and practical experience of the generals and officers.

In the course of the war the work methods were constantly improved. Thus, in 1941-1942, the plans for the offensive operations, as a rule, were made from the map and their planning and organization were carried out chiefly on the basis of written and oral instructions issued in setting the missions. Work in the field for clarifying the plan, for organizing the fire damage to the enemy, cooperation and other questions was not always carried out. The commanders and leadership of the fronts rarely traveled to the armies and formations for providing help in preparing for the offensive.

Starting from the second period of the war, the work methods were noticeably improved. The commanders and their deputies for the branches of troops, in preparing for the operation, spent more time in the troops and provided

practical aid to subordinate commanders and staffs in organizing combat and particularly cooperation among the troops (forces), their command and all-round support. This largely predetermined the successful course and outcome of the offensive operations.

In the course of the war, two basic work methods were actually practiced by the commanders and staffs of the fronts in preparing the offensive operations: **parallel** and **successive**. The former was employed, as a rule, with limited time to prepare for the operation and the latter when the front had sufficient time for organizing it. However, the specific work procedures of the commanders and staffs in taking decisions and in planning and organizing combat depended largely upon the personal qualities and professional preparedness of all the leadership of the field headquarters of the fronts and particularly the commanders.

Valuable experience in employing the **parallel work method** of the staffs in preparing for front-level offensive operations in a short period of time was gained, in particular, in organizing the offensive operation by the Third Ukrainian Front in the course of repelling the enemy counteroffensive in the area of Lake Balaton(1) as well as in the Prague Offensive Operation by the First, Fourth and Second Ukrainian Fronts, and which was organized and planned in 5 days.(2)

The rapid preparation for an operation required the execution of all planned measures in a minimum time. For this reason the plan for the operation as well as the planning and organizing of combat were conducted in parallel on the front, in the armies and formations, that is, almost simultaneously, with just a certain time lag based upon the verbal orientation for the forthcoming mission and the preliminary combat orders.

Usually Hq SHC [Headquarters Supreme High Command] oriented the fronts ahead of time on the forthcoming missions, the men and weapons to be assigned for conducting the operations, the actions of adjacent units and so forth. This provided an opportunity for the front commander, even before receiving the directive, initially independently and later together with the chief of staff and the military council member to outline the general basic elements for the configuration of the operation, to resolve certain questions on the employment of the all-arms field forces, the branches of troops and aviation in it and to determine the bases of cooperation and the organization of support. As the commander took the preliminary decisions and set the missions for the troops over the various communications channels, these were given to the executors, primarily to the troops fighting on the sector of the main thrust. The army commanders, in turn, having received the preliminary battle instructions, adopted their plan and issued instructions to the formations while the staffs began planning combat operations.

The chief of staff informed the leadership of the front field headquarters about the overall concept and troop missions within the designated limits. The chief of the operations directorate with one or two officers drew up the adopted plan on the map and this was the start of planning the operation. With the receipt of the directive, its content was studied and the necessary changes made in the individual orders for the troops. Usually the adjustments

were insignificant.(3) Without waiting for the final formulation of the plan, the front commander issued instructions on planning the operation and then, as a rule, along with the chiefs of the branches of troops and the staff officers, visited the troops where he personally clarified the missions and conducted work to organize combat. If the situation did not permit it, the commander remained at the command post and his representatives visited the troops. Such work methods were employed, for example, by the commander of the First Ukrainian Front, MSU I. S. Konev, in preparing the Upper Silesian Operation and by the commander of the Third Belorussian Front, Army Gen I. D. Chernyakhovskiy, in the Vilnius Operation.

With the successive work method, the decision and plan for the operation were first worked out fully in the front and only after this in the armies and then in the formations (the battle plan).(4) With the obtaining of preliminary instructions personally from the Supreme Commander-in-Chief or the chief of the General Staff on the forthcoming offensive and roughly on the missions of the front and adjacent units, the commander together with the leading staff workers of the front visited the field in the aim of more carefully studying the nature of enemy defenses, determining (clarifying) the axis of the main thrust (the breakthrough sectors), the most effective methods of defeating the enemy, the configuration of the troops and so forth. MSU I. S. Konev, in recalling the preparations for the 1944 Lwow-Sandomierz Operation, has written: "It was essential to very carefully and closely study the enemy, to compare and weigh all the conflicting information, to weigh all the 'pros' and 'contras,' to repeatedly visit the field, to establish the enemy positions, the best places for the offensive by our troops, their concentration areas, in a word to study everything thoroughly and only after this take the appropriate decisions."(5)

It should be particularly emphasized that the method of taking the decision for the operation depended largely upon the personal qualities of the commanders. For example, G. K. Zhukov, N. F. Vatutin, L. A. Gavorov, K. A. Meretskov, I. Ye. Petrov and certain other commanders, with the receiving of a directive (preliminary order), initially preferred to study it themselves, to think out the preliminary plan, to set the general outlines for the operation and then, after clarifying individual questions with the chief of staff, the military council member and the commanders of the branches of troops, to take a final decision, to set the missions for the armies and branches of troops and set out the plan of the operation.

K. K. Rokossovskiy, F. I. Tolbukhin and I. D. Chernyakhovskiy followed a different style of work. With the receiving of the directive (preliminary order), the commander, the chief of staff and the military council member of the front carefully studied it and the commander set the preliminary plan for the operation. The chief of staff provided the operational guidance for the staff leadership and set the tasks for preparing the calculations and information for the front commander and prepared a work plan for the commander and the staff in the field. After the work in the field, the commander assembled his deputies, the chief of staff, the commanders of the branches of troops and chiefs of services, he listened to their arguments and then made the final plan. Thus, in the words of the chief of staff of the Third Ukrainian Front, F. I. Tolbukhin worked out the plan for the Iasi-Kishinev

Operation.(6) MSU K. K. Rokossovskiy in his memoirs has written that the plan for the operation was worked out due to the efforts of a large collective in accord with the received mission, the assessment of the situation and the calculations made by the front's staff. The command and the leading workers of the front field headquarters took the most direct part in this work.

The planning of an operation represented the detailed elaboration of the content, sequence and methods of carrying out the missions by the troops, the allocation of their efforts over the sectors of action, as well as the coordinating of the questions of cooperation, all types of support and command. This was carried out by the staff under the leadership of the front commander on the basis of the adopted plan as well as the instructions of the General Staff and Hq SHC. The chiefs of staff of the fronts personally or together with the chiefs of the operations directorates worked out the most important part of the operation's plan, the operational part. Also involved in working out the plan (upon personal instructions of the commander) were the commanders of the branches of troops, the chiefs of the services and the chief of the rear. The plans for the combat employment of the branches of troops and services were prepared by the appropriate chiefs and coordinated with the front chief of staff.

The front-level offensive operations were planned by stages and by days. Usually they were planned in two stages (the Sandomierz-Silesian Operation of the First Ukrainian Front and the Vistula-Oder Operation of the First Belorussian Front and others) and more rarely in three stages (Operation Ring, the Don Front). The first stage, as a rule, involved breaking through the enemy defenses; the second and subsequent ones included the development of the offensive in depth, the encirclement and destruction of the enemy groupings, the pursuit of retreating troops and the carrying out of other missions including the execution of the immediate and then the further mission of the front.(7) Planning the operation by days occurred in the preparation of the Belgorod-Kharkov Operation of the Voronezh and Steppe Fronts in August 1943, the Bobruysk Operation of the First Belorussian Front in June 1944 and others.(8)

Day-by-day planning in the war years was usually carried out in those operations when the missions of the fronts were shallow, the opposing groupings were strong and the set goals were to be reached in 5 or 6 days. The planning of the first stage by days (this was a rare instance) made it possible for the front commander and staff to work out in detail the questions of cooperation of the troops (forces) in carrying out the most difficult tasks involving the breakthrough of the enemy deliberate defenses, the defeat of the enemy strong counterstrike groupings, the crossing of broad water obstacles and so forth.

A most important element in the preparation of operations was **the organization of cooperation** the essence of which consisted in coordinating and correlating the actions of the operational field forces and formations of all branches of troops according to the missions to be carried out by them jointly in terms of goals, place (determining the place and role in the operational configuration of the front's troops and the nature of their actions in capturing one or another line) and time. The front commander was the main

organizer of cooperation and he designated who was to cooperate with whom in carrying out what missions and specifically how this should be expressed. In certain operations (the counteroffensive at Stalingrad, in the Belorussian Operation and so forth), cooperation was organized in the presence of a representative from Hq SHC. Cooperation in a front usually was organized by days and to the depth of the immediate task. Only in certain first front-level operations where the depth was not deep (Belorussian, Kiev and others) was cooperation organized up to the point of the achieving of their end goals.

If time was limited, the front commander organized cooperation using maps in setting the missions for the armies and branches of troops. The chief of staff worked out and issued to the staffs a coordination procedure chart and the methods of maintaining contact between the cooperating field forces and formations. When the situation permitted, the front commander with a small group of staff officers traveled to the observation posts of the armies fighting on the sector of the main thrust of the front and clarified the specific cooperation questions. If time was available, cooperation, in addition, was worked out on the maps in the course of conducting operational military games or command-staff exercises, on terrain mock-ups and directly in the field.

Exercises (drills) were conducted personally by the commander (some by the chief of staff), using as assistants the commanders of the branches of troops, the chiefs of services and officers from the operational directorates (sections). The basic work method (in addition to instructions) was the working out of variations and the playing through of troop combat in breaking through the defenses, in committing mobile groups and second echelons to combat, in repelling counterstrikes and so forth. For example, in preparing for the Iasi-Kishinev Operation, the Commander of the Second Ukrainian Front, Army Gen R. Ya. Malinovskiy, personally conducted a two-day command-staff exercise on the subject "Troop Command and Control Under the Fluid Conditions of the Operation." After this at the front's staff, using a large-scale relief map, the commander and the chief of staff of the front conducted an exercise involving the leadership of the field headquarters and here they carefully worked through the questions of cooperation in playing out the characteristic variations of combat in breaking through the enemy defenses and in committing the 6th Tank Army and XVIII Tank Corps to battle. These exercises were attended by the commanders and chiefs of staff of the 27th and 52d All-Arms Armies, the 6th Tank Army and the 5th Air Army as well as the commanders of the formations fighting in the first echelon on the sector of the front's main thrust. The questions of cooperation were also worked out directly in the field with the army and formation commanders.

In preparing for the Vistula-Oder Operation on the First Belorussian Front, the questions of cooperation on the front were worked out using maps in the course of an operational military game and in the armies in military games on maps, at exercises using field mock-ups and directly in the field. The profound and complete working out of cooperation questions on all levels made it possible to study the set missions with all the leadership of the field headquarters of the fronts and the armies and the methods of carrying them out as well as adjust the plans for the front and army operations. After working out all the cooperation questions under the leadership of the chief of staff a

cooperation table (plan) was worked out and copies of this were sent out to the troops. Upon the instructions of the commander, the front chief of staff worked out a plan for preparing the offensive operation, he personally monitored the course of carrying it out and regularly reported on this to the commander or at a session of the front military council.(9)

The experience of the war showed that the success of the front and army operations depended largely upon bold and decisive actions primarily by the units and formations. For this reason the commanders of the fronts (armies) gave serious attention to the **questions of training the troops (forces)**, to organizing combat particularly for the formations fighting on the sector of the main thrust. Thus, in preparing the Vitebsk-Orsha Operation, the Commander of the Third Belorussian Front, Col Gen I. D. Chernyakhovskiy several times visited each rifle division of the first echelon of the armies fighting on the sector of the main thrust and provided great practical help to the divisional commanders in organizing combat. In this regard one should note the work methods of a commander from the example of the 331st Rifle Division (commander, Maj Gen P. F. Berestov) of the 31st Army. In mid-June 1944, I. D. Chernyakhovskiy with a group of generals and officers arrived at the division's command post. He heard the report of the formation commander concerning the condition and position of the division's units, its manning, the availability of ammunition, the contents of the received combat mission, the attacked reinforcements and so forth. Then the division commander set out his conclusions from the assessment of the situation and the plan for breaking through enemy defenses. After hearing the report the front's commander together with the commander of the 31st Army, Lt Gen V. V. Glagolev, the commander of the LXXI Corps, Lt Gen P. K. Koshev, and the division commander traveled to the division's observation post where they studied the forward edge and the nature of enemy defenses in detail, the initial position of the elements in the formation's combat formation for the offensive and the conformity of the adopted plan to the mission and to the situation.

Having carefully worked out these questions, the commander of the front issued a number of additional instructions on the organization of combat. First of all he demanded that the firing positions of the regimental and divisional artillery groups be brought closer to the forward edge for only in this instance could the artillery, without changing firing positions, support the advance of the infantry to a greater depth. The second echelon of the division (the 1104th Rifle Regiment) was to be located closer to the first echelon so that it could be committed to battle quickly if necessary and break through the second and third positions of the enemy's main defensive area at a rapid pace. Considering the nature and strength of the enemy defenses, the commander ordered an increased number of weapons to fire with direct laying. He demanded that the commander of the supporting artillery battalion stay with and move up with each commander of a rifle battalion. A number of other instructions were also given. The commander employed a similar method of organizing combat in working with the remaining formations, particularly those fighting on the sector of the main thrust. The given method contributed largely to the successful breakthrough of the deliberate enemy defenses as well as to the course and outcome of the operation as a whole.

Thus, on the basis of the experience of the last war, it can be concluded that the parallel work method of the front commanders and staffs in preparing for the offensive operations was characteristic for highly dynamic situational conditions. It demanded high efficiency and organization in work and the rapid execution of the necessary range of preliminary measures. This experience of preparing combat has largely maintained its importance at present.

The successive work method in preparing the operations was employed when sufficient time was available. Such a work method can be employed under present-day conditions in preparing the first operations as well as subsequent operations with the presence of operational halts between them.

FOOTNOTES

1. TsAMO SSSR [Central Archives of the USSR Ministry of Defense], folio 243, inv. 1912, file 188, sheets 218-219.
2. Ibid., folio 236, inv. 2712, file 379, sheets 34-40.
3. Ibid., inv. 2673, file 470, sheets 25-30.
4. Ibid., folio 386, inv. 8533, file 306, sheet 5; folio 331 sd, inv. 66759, file 3, sheets 10-12.
5. I. S. Konev, "Zapiski komanduyushchego frontom 1943-1944" [Notes of a Front Commander 1943-1944], Moscow, Nauka, 1972, pp 229-230.
6. S. S. Biryuzov, "Sovetskiy soldat na Balkanakh" [Soviet Soldier in the Balkans], Moscow, Voenizdat, 1963, pp 52-56.
7. For more detail on planning, see: "Voyennoye iskusstvo vo vtoroy mirovoy voyne" [Military Art in World War II], a textbook, Moscow, Izd-vo VAGSh, 1973, pp 308-309.
8. TsAMO, folio 229, inv. 590, file 177, sheets 1-9; "Sbornik materialov po izucheniyu opyta voyny" [Collection of Materials on Studying the Experience of the War], Moscow, Voenizdat, No 18, 1945, pp 191-193.
9. TsAMO, folio 240, inv. 2779, file 183, sheets 3-6; inv. 2779, file 111, sheets 1-3; folio 241, inv. 2593, file 675, sheets 1-2.

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EXPERIENCE OF ORGANIZING, CONDUCTING RECONNAISSANCE IN FORCE

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 9, Sep 85 (signed to press 23 Aug 85) pp 20-28

[Article by Col P. M. Simchenkov; during the years of the Great Patriotic War, Petr Mikhaylovich Simchenkov was the chief of the operational reconnaissance section on the staff of the 60th Army]

[Text] In the chronicle of the Great Patriotic War, operational reconnaissance has inscribed numerous remarkable pages. It has been viewed as one of the most important types of combat support for the operational troops. The harsh law of war states that not a step can be taken without reconnaissance. The slightest neglect of it meant fighting blind, missing an opportunity for victory while jeopardizing one's troops to attack. At the same time experience showed that the better the commanders and staffs knew their enemy, its plans and intentions, the more correctly they fought, the greater the combat successes and the fewer the losses.

Reconnaissance in force is among the most complicated and active forms of reconnaissance activity. Starting in 1943 until the end of the war, in the course of preparing for an offensive this was one of the most important measures of the command aimed at ensuring the successful carrying out of the combat missions by the first echelon troops to break through the main enemy defensive zone. As the scale of our offensive broadened, the forms and methods of conducting reconnaissance in force were improved and the combat effectiveness rose.

Reconnaissance in force was carried out by specially assigned subunits in the aim of discovering the true configuration of the forward defensive edge and the fire plan, to establish possible changes in the effective enemy forces and the numbering of the units, to detect the possible pullback of troops from the first position and the particular features of the defensive works in the given area. Usually the command resorted to this type of reconnaissance in those instances when it was impossible to obtain the necessary information about the enemy by other means.

In terms of the nature of combat, reconnaissance in force was reminiscent of the offensive by a subunit against a strongpoint and was carried out at different times of the day but, as a rule, at dawn, toward evening and

sometimes at night. However, as experience confirmed, in no manner must it be conducted by routine, as such actions in a majority of instances led to failure. The nature of the terrain, the time of day, the condition of the weather, the position of the enemy troops and their effective strength and conduct (activity or passivity) always demanded diverse procedures and methods for conducting a reconnaissance in force. The more initiative, inventiveness, cleverness and resourcefulness shown in preparing and conducting it the more successful and effective the actions of the reconnaissance subunits. But in all instances the guarantee for combat success was a carefully thought out plan with precisely and clearly designated tasks, skillfully organized cooperation, particularly with the attached and supporting resources, as well as good training of the personnel assigned for participating in this combat. The unskillful organization of reconnaissance in force, the neglect of camouflaging and routine in actions often alerted the enemy and at times gave away our intentions.

Combat practice showed that it was ill-advised to conduct a reconnaissance in force several days prior to an offensive, as in this instance the enemy gained an opportunity to alter its battle formations and fire plan, to regroup its forces and bring the artillery to new firing positions. This was the case, for example, in July 1942 in the area of the 61st Army. After the reconnaissance in force carried out by our subunits, the enemy pulled back a portion of the first echelon from the first position. As a result, the artillery in the course of the artillery softening up launched its fire strikes against unoccupied positions while the divisions which went over to the offensive, having easily crossed the first position, encountered strong fire and stubborn resistance in the second position. The missions for the first day of the offensive were not carried out.

In going over to the offensive, reconnaissance in force was carried out, as a rule, some 24 hours and at times 4-5 hours prior to the start of the general offensive. This was done to force the enemy to believe in the actual start of the general offensive and thereby cause it to swing all its main weapons into action and bring up reserves. For example, in 1944, on the eve of the general offensive by the First Baltic and Second and Third Belorussian Fronts, reconnaissance in force was successfully carried out by the forces of the forward battalions which in a number of areas drove from 1.5 to 6 km into the enemy defenses and forced the German Command to commit the divisional and partially the corps reserves to combat. In the Vitebsk-Orsha Operation, the actions of the forward battalions on individual axes developed into a general offensive. The main forces of the first echelon regiments and divisions skillfully exploited the success achieved in the course in the reconnaissance in force.

Reconnaissance in force, as a rule, was carried out upon the decision of an army commander and at times upon a decision of the formation commanders. Here they precisely determined the effective strength, area and axis of operations, the time for taking up the jump-off position and the start of combat, the tasks of all resources involved, the questions of cooperation and the missions for the main forces of the first echelon formation where the combat would occur.

In the most important operations, for reconnaissance in force a forward battalion was assigned from each first echelon division and sometimes a rifle company headed by the most experienced, decisive and enterprising commander. The assigned subunits acted simultaneously in the entire area of the army and sometimes the front in order to conceal the direction of the main thrust from the enemy. In all instances for supporting combat such battalions were reinforced by tank, reconnaissance, antitank and engineer subunits while artillery was attached or supported them.

The number of weapons assigned for conducting reconnaissance in force each time was set depending upon the nature of enemy actions, the presence of detected and probable targets to be destroyed or suppressed, the density of engineer works which would be destroyed by gun and mortar fire during the period of softening up for the attack and the carrying out of fire missions related to the support of combat. However, in all instances, the resources for reinforcement and support were significantly greater than in an ordinary offensive, as it was considered that in the course of the reconnaissance in force the subunits would fight on isolated axes with exposed flanks. Moreover, it was frequently necessary to neutralize enemy weapons along a front which significantly exceeded the area of advance of a battalion (company), since the enemy in the aims of countering the attacking subunits had an opportunity to draw on its weapons which were a significant distance away from the area where the reconnaissance in force was being carried out. As experience was to show, in a majority of instances, the support for a rifle battalion in conducting a reconnaissance in force involved from two to four artillery battalions, a battalion of BM-13 rocket launchers, a mortar company and when necessary aviation was also involved.

The main guarantee for the successful execution of reconnaissance in force was well carried out preparation of the subunits to carry out the designated missions. Usually from 5 to 7 days were assigned for the preparations. During this time they studied the objectives of the attack, the nature of the terrain, the fire plan and engineer obstacles, they worked out the questions of cooperation, established signals, determined the landmarks and covertly made passageways through the minefields on the eve of combat. As a rule, the subunits were taken into the rear and to terrain similarly equipped to the enemy defenses, they worked out the methods of attack, the crossing of obstacles, the capturing of prisoners and weapons, the methods of repelling possible counterattacks and the questions of supporting disengagement if this was envisaged by the plan.

In organizing reconnaissance in force, we, the operational intelligence officers, were concerned first of all with what must be done to achieve surprise. For this purpose, all preparations were carried out covertly. The objective of the attack was selected in such a manner that the subunit could approach it unnoticed from a direction unexpected by the enemy. Consideration was also given to the communications of this objective with the firing points in the general defensive system and the ability to provide fire support. The daily regimen of the subunits was closely studied, the time for the changing of sentries was established and the observation system disclosed.

An instructive example of the organization and successful conduct of reconnaissance in force could be reconnaissance ahead of the front of the 328th Rifle Division in the area of Kovel in the summer of 1944. Observation established the movement of small groups of infantry, motor transport and individual enemy weapons from the front to the rear. During the night engineer work could be heard being carried out. A change in conditions was noted. From external indications there was every reason to assume that the enemy troops were being relieved.

The division's commander, Col I. G. Pavlovskiy, decided to conduct reconnaissance in force with a reinforced rifle company. A strongpoint located on an elevation was chosen as the objective of the attack. By careful observation it had been established that it had foxholes and complete communications trenches, two pillboxes, machine gun nests and up to three dugouts on the back slopes. The scouts had also clarified the procedure for standing duty on the forward edge and the nature of the man-made obstacles.

I had been noticed that the enemy reinforced the first trench with personnel for the night but at dawn pulled back a larger portion of the personnel. Considering this, the division's commander decided to begin the reconnaissance in force in the morning. For conducting it he ordered the assignment of the 3d Company from the 1st Battalion of the 1107th Rifle Regiment and for supporting combat a battalion was to be assigned from the 687th Artillery Regiment, a battery of 120-mm mortars, two companies of 82-mm mortars, a platoon of antitank guns, a platoon of combat engineers and two groups of scouts. On the flanks, under the cover of smokescreens, feints were prepared by two platoons. In setting the mission the division commander pointed out that in the process of the reconnaissance in force it was essential to clarify the fire plan and the nature of the enemy obstacles and in overcoming the strongpoint to take prisoners and capture documents and weapons. The commander of the 1107th Rifle Regiment was put in charge of preparing and conducting the reconnaissance in force.

During the period of preparing for the reconnaissance in force a plan for it was worked out and two training drills were conducted for the personnel in the field. In the evening of 20 June, the company took up the jump-off position for the offensive. During the night the combat engineers noiselessly laid bangalore torpedoes under the enemy obstacles. At 0500 hours on 21 June, a 5-minute intense shelling was carried out against the first trench and the enemy weapons. The weapons assigned for firing with direct laying destroyed the pillboxes and the machine gun nests. During this time the combat engineers detonated the bangalore torpedoes and made passages through the obstacles. After this for a period of 15 minutes firing was carried out in the aim of neutralizing the weapons on the flanks and in the strongpoint. When the artillery shifted its fire in depth, the company went over to the attack. Advancing behind the shell explosions, the subunit personnel broke into the first trench and forcing out the enemy, captured the hill. The subsequent first enemy counterattack was repelled.

The combat lasted 40 minutes. Having carried out the mission, the company upon the orders of the division commander, under the cover of fire, pulled back to its position. In the course of combat they destroyed 13 dugouts and

shelters, they destroyed the pillboxes, captured five men and established the numbers of the new units, while the enemy suffered losses in personnel and equipment. Success was aided by the concealment and careful preparation for actions, by the surprise and rapidity of the attack, by the correct choice of the time for combat and by the dependable fire neutralization of the enemy defenses. The feints by the small subunits on the flanks also played a positive role as they distracted the enemy.

On the important sectors, the combat of the subunits was often led personally by the formation commander and in other areas this mission was assigned to the regimental commanders and more rarely to the division's chief of intelligence. In order to make maximum use of the results of the reconnaissance in force, in those areas where it was carried out, the commanders of the divisions, rifle regiments and battalions were usually at their observation posts and personally studied the enemy in the course of combat. Officers from the staffs and reconnaissance subunits were also involved in the observation. In addition, enemy actions were also observed from the observation posts of all the branches of troops and special troops.

We would particularly like to emphasize the experience of **conducting reconnaissance in force at night**. Nighttime conditions, as a rule, favored the action of our reconnaissance subunits, since in darkness it was easier to ensure covertness and surprise and deceive the enemy about our forces and intentions. There was an opportunity to defeat the enemy with smaller forces, to weaken its will and cause fear. We also considered that more often in nighttime the enemy would carry out a regrouping, pull back weapons to new positions, set up man-made obstacles and its vigilance would be somewhat dulled due to the fatigue of the personnel and being off duty. Quite understandably, certain difficulties also arose at night as the possibility of observation was lessened and orientation in the field was harder. Under such conditions a more precise organization of combat and particularly cooperation was essential.

In the course of preparing to conduct nighttime reconnaissance in force, first of all they increased the number of observation posts by the additional setting out of posts or observers and widely employing radio, optical and sound ranging equipment. Sometimes for improving observation conditions illuminating artillery shells and rockets as well as bombs were employed and fires were started in the enemy positions.

The following episode shows the effectiveness of nighttime reconnaissance in force. In the winter of 1942, the commander of the 122d Rifle Division, Col N. N. Meshcheryakov, decided to conduct a reconnaissance in force. He set the mission for one rifle company, with the support from two artillery battalions and a mortar battery, to go over to the offensive at night along a broad front. By this time additional observation posts had been set up and here were located staff officers from the division and the regiments. The artillery troops organized joint observation. During the night of 31 January, after heavy intense shelling, the company attacked the enemy. Having overcome the battle outposts, it moved decisively forward, firing all types of firearms. The Nazis took its actions as the start of an offensive and opened up massed fire with their artillery. As a result on this section a majority

of their weapons was disclosed and this helped better plan the artillery softening up for the soon-to-start general offensive.

Reconnaissance in force was also conducted **in the course of an already commenced offensive**. But then it was given somewhat different missions and other methods were employed. As experience was to show, at this stage it was conducted by reconnaissance detachments which usually included up to two platoons of submachine gunners mounted on motor vehicles, a platoon of armored vehicles, a platoon of antitank weapons and one or two platoons of motorcycle-mounted machine gunners. Such a reconnaissance detachment had high mobility and in terms of its fire capability possessed sufficient penetrative force which ensured its active conduct of reconnaissance in force. The reconnaissance detachment, as a rule, was given the missions of: establishing the direction and route of retreat of the main forces, the composition and size of retreating enemy columns and the lines from which the enemy was preparing for counterattacks. In those instances when the retreating troops endeavored to dig in on an intermediate line, the reconnaissance detachment ascertained the fire plan and defenses, the composition of the defending enemy forces and its intentions.

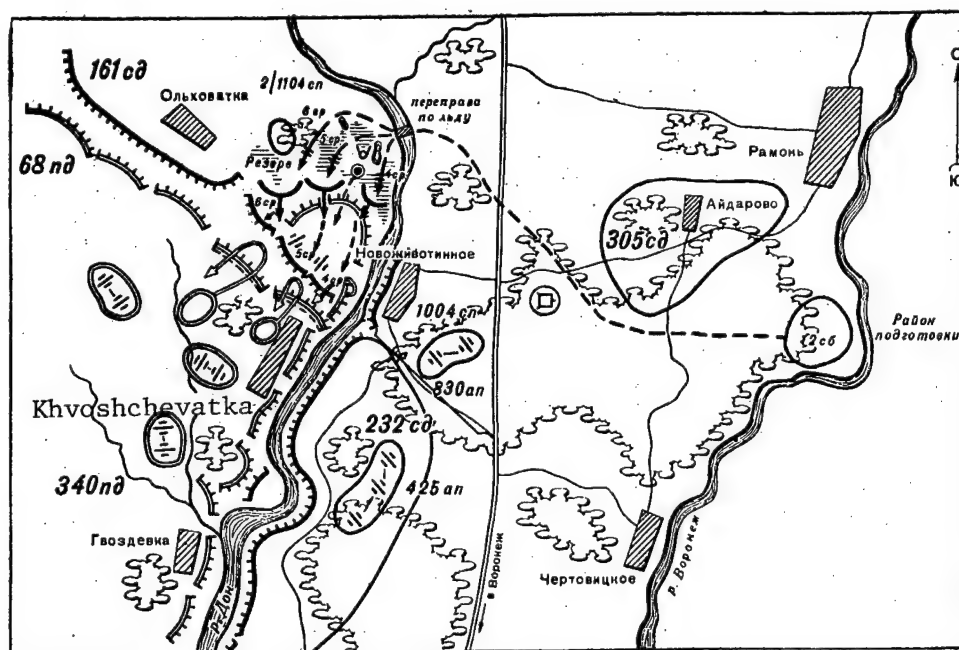
In the course of an offensive the reconnaissance detachments also successfully employed other methods of fighting. With the start of the enemy's retreat and the going over of our troops to pursuit, a part of a reconnaissance detachment consisting of a platoon of submachine gunners, several armored vehicles and two-five motorcyclists (a reinforced reconnaissance patrol) was sent out to reconnoiter the retreating units, it made brief surprise raids on individual objectives and took prisoners.

In conducting a defensive our troops also skillfully conducted reconnaissance in force. In a majority of instances this was carried out upon the decision of a divisional or corps commander. Although in terms of its goals, tasks, the composition of involved forces and the methods of action, a reconnaissance in force in conducting a defensive was largely similar to a reconnaissance in force in the course of preparing for an offensive, it still had characteristic features. First of all, the enemy established compact battle formations and showed greater fire activity. Most frequently on the defensive a reconnaissance in force was carried out when it was expected that the enemy would go over to an offensive and it was essential to clarify information about its forces, the troop grouping, the time for the start of the offensive, the axis of the main thrust as well as exclude the possibility of surprise actions.

There were frequent instances of conducting reconnaissance in force prior to the start of artillery counterbombardment. This was done in order to exclude the launching of fire strikes against secondary objectives or empty space. For this reason it was essential to clarify the data on the grouping and position of troops preparing for the offensive and the position of enemy weapons, its command posts and other important objectives to be hit in the course of the counterpreparatory fire.

In defensive battles, particularly in the autumn of 1942, when the task was set of increasing the combat activeness of our troops and preparing the

personnel for the coming offensive battles, reconnaissance in force was conducted not only to gain reliable information about the enemy but also for the purpose of improving the positions of our troops, for capturing prevailing heights and bridgeheads on river lines, for wearing down the enemy and creating a constantly tense situation. Here the example would be the successfully conducted reconnaissance in force in November 1942 on the boundary of the 60th and 38th Armies on the right bank of the Don to the north of the village of Khvoshchevatka (see the diagram). When I, as the chief of the operational reconnaissance section of a reconnaissance detachment was giving a regular report to the army chief of staff, Maj Gen S. N. Krylov, on the plan for operational reconnaissance, he pointed out that particular attention should be given to studying the enemy on the right bank, where our subunits had not yet occupied an area of swampy terrain. After examining this area in the field with the chief of staff of the 305th Rifle Division, Col A. F. Vasilyev, the idea arose of conducting a reconnaissance in force. In this area the enemy's forward edge ran along the prevailing heights and wedged sharply into our defenses where the Nazis could observe our rear to a depth of 3-4 km.



Reconnaissance in Force in the Area of Khvoshchevatka

By constant observation from two posts and by signals interception it had been established that during the night the enemy pulled back its subunit from the forward edge to rest and warm up in the village, leaving several paired observers in the pillboxes of the first trench and these periodically fired illumination rockets in the air. We decided to benefit from this auspicious moment and we chose a company strongpoint as the objective of the attack. We had carefully studied this using aerial photographic materials. In it there were three machine gun emplacements, three dugouts, as well as complete trenches and communications trenches. In front of the forward edge ran two

rows of wire obstacles and a minefield. In order to lessen enemy vigilance, instructions were given not to conduct nighttime raids here, not to alter the mode of fire, to camouflage new observation posts carefully and conduct reconnaissance covertly using a small group.

In taking the decision to conduct reconnaissance in force, the commander of the 305th Rifle Division, Col A. P. Krutikhin, determined its goal, the missions for the involved subunits, the width of the area of advance and the most effective battle formation. The second battalion of the 1004th Rifle Regiment was assigned for conducting the reconnaissance in force and it was reinforced with a reconnaissance platoon, a company of 82-mm mortars, a platoon of antitank weapons and a platoon of combat engineers. The 830th Artillery Regiment and a battalion of BM-13 rocket launchers were assigned for providing fire support for the combat.

When the question arose of establishing the time for the battalion to go over to the offensive, opinions were divided. However, the division commander agreed with the arguments and proposals of Col A. F. Vasilyev who was strongly supported by me and took the decision to conduct the reconnaissance in force without preliminary artillery fire strikes in the aim of achieving surprise and reducing the possible losses.

The plan for conducting the reconnaissance in force was worked out by the divisional staff with the involvement of the artillery chief and the divisional engineer. The plan reflected: the decision of the divisional commander and the tasks set for the battalion as well as the attached and supporting weapons, the questions of cooperation and engineer support (the reinforcing of the ice cover on the Don for reaching the initial area, making passageways through enemy obstacles and preparing equipment for laying obstacles deep in the defenses), the organization of combat training and the inspecting of the subunits for carrying out the combat mission, as well as the organization of observation, command, control and communications.

The battalion commander, having received the mission, studied it and determined what measures must be carried out for preparing for combat, he calculated the time and issued the necessary orders. After this, under the leadership of the division's chief of intelligence, he studied the area of the forthcoming actions, he conducted reconnaissance, he adopted a plan and set the missions and established light signals for reciprocal identification and warning. The battalion's battle formation was formed up in a single echelon with the assigning of a platoon of submachine gunners and a squad of antitank rifles as the reserve.

The immediate preparations of the battalion to carry out the set mission were directed by the regimental commander while the chief of intelligence in the division was in charge of the questions of organizing and conducting reconnaissance for the period of combat. The final training exercises were conducted by the divisional chief of staff. In the preparations particular attention was given to training the battalion and the attached and supporting subunits. Preparations were carried out according to a separately worked out program for 4 days in the rear on the Voronezh River to the south of Ramon. Here the actions of the squads, platoons and companies were worked out around

the clock down to the last detail while the personnel was instructed in the techniques of noiselessly crossing through the passages made in the wire obstacles and the minefield, fighting in the trenches, sealing off the pillboxes and individually located firing points and in repelling counterattacks. The combat engineers trained in cutting passageways through the minefields, in setting obstacles in creating planking on the river ice and moving the subunits across it. The scouts worked out the techniques for covertly approaching the trenches and dugouts and capturing prisoners and weapons.

During the night of 28 October, the artillery took up the firing positions. The ranging of the targets was carried out during the day by solitary weapons without disrupting the previously established firing conditions of one or two rounds with intervals of 2 or 3 hours. During the second half of the day of 29 November, the divisional chief of staff arrived at the observation post in the area of Novozhivotninnoye for controlling the combat. Here also were the commander of the artillery regiment and the divisional chief of intelligence. By this time cooperation with the adjacent unit on the right (the commander of the 161st Rifle Division, Col P. V. Tertyshnyy) had been organized as well as with the adjacent unit on the left (the commander of the 232d Rifle Division, Col I. I. Ulitin). Toward evening a strong wind blew up from the enemy side and a snowstorm commenced with visibility dropping to a minimum. In benefiting from this, the battalion with the onset of darkness unnoticed crossed the ice of the Don and reached the enemy's forward edge. The combat engineers who were standing duty by the cleared passages let through a platoon of scouts which quickly approached the first trench and sealed off three pillboxes from whence the happy talk of the German soldiers could be heard. With the surprise appearance of our scouts they did not even endeavor to put up resistance. During this time six scouts moved 250-300 m deep into the defenses along the communications trenches ready to cover the platoon's actions. The path was open.

The battalion's subunits occupied the trench, the communications trenches, the pillboxes, dugouts and the observation post of the company commander where there was a junior officer and four soldiers. On the captured hill they immediately began to organize the defenses facing to the southwest and improve the fire plan. The prisoners, captured weapons and documents were sent to the rear. In the morning, with the rising sun, up to 20 enemy soldiers headed by a sergeant major were moving without concern along the communications trench. The scouts let them pass and then cut off the escape route. Having spotted our soldiers, the Nazis opened fire and began to retreat but it was too late. Five men were killed and three wounded by submachine gun fire and grenades. The rest were taken prisoner. The enemy subunits on the right flank, seeing that they had been outflanked from the rear, began to hurriedly retreat to the village. The counterattack which followed this up to an infantry company in strength was thwarted by the firing of the rocket battalion and mortar company. During the day the Nazis undertook several strong counterattacks but they were all driven off with high losses for them. It must be said that in repelling the counterattacks substantial aid was provided by the artillery from the unit to the left, the 232d Rifle Division which from the flank launched intense shelling against the village of Khvoshchevatka and the enemy batteries.

The aim of the reconnaissance in the course of combat was achieved as by the interrogation of prisoners and by combat it was possible to clarify the enemy grouping on the border of the two armies, the numbering of the enemy units and the fire plan, the salient in the enemy defenses was eliminated, a company strongpoint on a prevailing height was captured, five artillery batteries were detected and the Nazis suffered significant losses in personnel and equipment. Our losses were minimal with three men lightly wounded.

Thus, the experience of the Great Patriotic War shows the high effectiveness of reconnaissance in force. As a result of studying the diverse methods of conducting it which were employed by the troops on the battlefields of the last war, at present the combat skill of the commanders, staffs and troops can be increased.

At present, as was shown by the troop training practices, reconnaissance in force has not lost its importance, particularly under the conditions of the direct contact of the sides.

Due to the fact that a modern defensive, according to the views of the NATO Command, will differ largely from the defensive in the last war, for the successful conduct of reconnaissance in force it is essential to have more diverse and careful organization of it and the skillful use of the powerful types of modern weapons and the new equipment for reconnaissance and control.

At present, in conducting nighttime reconnaissance in force it is possible to successfully carry out the set missions by employing night vision instruments, infrared equipment, sound ranging, radar and radio equipment as well as illuminating equipment. At present, the firearms supporting reconnaissance in force are also employed differently. The most experienced commanders direct the strength of artillery fire primarily at neutralizing enemy batteries and strongpoints, by direct laying they destroy weapons and tanks with night sights and illuminating equipment and also neutralize enemy electronic equipment. In the course of combat they illuminate the field in such a manner as not to impede our subunits from employing the night vision instruments and so that the battle formations of our troops are not observed by the enemy.

In the course of combat training the commanders and staffs of all levels are constantly improving their skill in organizing reconnaissance in force, they are gaining firm knowledge and skills in employing reconnaissance equipment and carrying out surprise and bold actions and are mastering the difficult art of conducting them with the employment of strategem and deception.

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DISCUSSION OF ROLES OF NKVD TROOPS IN WORLD WAR II

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[Article by Doctor of Historical Sciences, Maj Gen V. F. Nekrasov: "The Contribution of the Internal Troops to the Cause of the Victory of the Soviet People in the Great Patriotic War"]

[Text] The victory in the Great Patriotic War was won due to the unstinting efforts of the Soviet people and their Armed Forces. The men of the Internal Troops also made their contribution to bringing about this historical event.

The basic purpose of the NKVD [People's Commissariat of Internal Affairs] Troops was to carry out special missions. This was also the main thing for them in wartime. **When necessary they also participated in battles and engagements.** At the start of the war, the NKVD units and formations, as a rule, entered battle where they were stationed. Subsequently, they were shifted to the all-arms command and were used at its discretion as well as upon the instructions of the USSR NKVD. As a total during the years of the Great Patriotic War 53 divisions and 28 brigades of the NKVD Troops were part of the operational army for various lengths of time and participated in battles, not counting many other independent units as well as the Border Troops.(1)

Prior to the war, the 132d Separate Battalion of NKVD Troops was stationed at the Brest Fortress along with other units. Its men and commanders, having become a part of this immortal garrison with the outbreak of combat, heroically defended the fortress. On the walls of the barracks of precisely this unit, an unknown hero left the inscription: "I die but I do not give up! Farewell, motherland! 20 July 1941."

Five days after the outbreak of war in the Baltic, the 22d NKVD Motorized Rifle Division was organized and it fought along with the X Rifle Corps of the Soviet Army at Riga, Tallinn and on other lines. In Moldavia, the personnel of the 4th Division of NKVD Troops fought heroically against the Nazis in defending the railroad facilities. A subunit from the 57th Regiment of this division numbering 27 men, starting from 0400 hours on the morning of 22 June 1941 and for the next 5 days, stubbornly defended the railroad bridge across the Prut River at Ungeny Station. The Nazis stormed the bridge with up to an

infantry regiment supported by three artillery batteries but were unable to break the heroic resistance of the garrison. Only at the end of 5 days did the garrison, upon orders from the command, give up the held position.(2) The men of the 4th NKVD Division covered themselves with glory at Kiev and Chernigov. During the moment of the retreat of the Soviet troops from Kiev, this formation was fighting as the rear guard of the 37th Army and was conducting continuous battles against superior enemy forces. Surrounded by the enemy, the division continued to fight actively making its way unit by unit to the Soviet positions.

A glorious page in the combat history of the Internal Troops is their participation in the heroic defense of Leningrad. Fighting on the near and far approaches to the city were the 1st, 20th, 21st, 22d and 23d NKVD Divisions. In August-October 1941, high courage and steadfastness in the battles of Leningrad were shown by a battalion of officer candidates from the Military Political School of the NKVD Troops imeni K. Ye. Voroshilov under the command of Maj N. A. Shorin. The 21st NKVD Rifle Division (on 6 August 1942, it was reorganized as the 109th Rifle Division of the Soviet Army) fought among those formations which stopped the enemy by the walls of the city of Lenin. All attempts by the Nazis to break through to the Kirov Plant were driven off.(3) By November 1942, 482 men of the division had been awarded governmental decorations for heroism and combat feats while Lt Col A. A. Divochkin, the senior political instructor N. M. Rudenko and Pvt A. A. Kokorin had become Heroes of the Soviet Union.

In the battles at Rostov, the men of the 230th NKVD Regiment particularly distinguished themselves. The Command of the 56th Army provided the following assessment for their combat: "The regiment's personnel intrepidly fought the Nazis, showing here amazing examples of courage, invincible tenacity, initiative, valor and bravery, maintaining military discipline and organization in all instances of the difficult situation."(4)

In the Battle of Stalingrad the 10th NKVD Division fought actively. Along with other formations, it stubbornly held the defended line. The petition for the decoration of the division signed by the commander of the Stalingrad Front, Col Gen A. I. Yeremenko, and the military council member A. S. Chuyanov states: "...The division blocked the way of an enemy shock grouping to the center of the city.... During battles lasting 6 weeks for Stalingrad, the division successfully carried out the given missions. The personnel showed examples of mass heroism and self-sacrifice...the division destroyed over 15,000 enemy soldiers and officers...hit and burned up some 100 tanks...."(5) On 2 December 1942, the 10th NKVD Division was awarded the Order of Lenin and later it was given the honorific designator "Stalingrad." At present, among the numerous commemorative monuments at Volgograd is a magnificent monument honoring the Chekist soldiers. Several streets in Volgograd have been named after the hero soldiers of the 10th NKVD Division.

The Internal Troops also played a prominent role in the battle for the Caucasus. In August 1942, the Ordzhonikidze, Groznyy and Makhachkala NKVD Divisions were organized. Along with Soviet Army units, these stubbornly held the cities of Ordzhonikidze and Groznyy and covered the routes to Makhachkala and Derbent preventing the enemy from breaking through into the Transcaucasus.

In the Nalchik-Ordzhonikidze Defensive Operation the 11th NKVD Division participated as part of the 37th Army. Over the 3 days of the defense of the city, 28 enemy tanks and over 1,500 enemy soldiers and officers were destroyed. The commander of the 37th Army, Maj Gen P. M. Kozlov, thus assessed the actions of this division: "The history of the 3-day battle by the 11th NKVD Rifle Division for Nalchik merits close attention. The division, small in size and underpowered in the sense of weapons, was a model of steadfastness and courage in the fight against the enemy which was immeasurably superior in quantitative terms and excellently equipped.... The defenders of the city resisted until the last possibility and many of them showed excessive tenacity and courage in combat."(7) Here, in the Caucasus, in November 1942, immortal feats were carried out by the squad commander and secretary of the Komsomol organization of a submachine gunner company, Jr Sgt P. P. Barbashev, and the squad commander of a rifle regiment, Jr Lt P. K. Guzhvin, using their bodies to block the firing slits of enemy firing positions. Both were posthumously awarded the title of Hero of the Soviet Union.

Participating actively in the offensive of the Northern Caucasus Front were the Sukhumi Rifle Division (as part of the 9th and 37th Armies) and the 1st Separate Rifle Division as part of the 56th Army of the Internal Troops. In these battles Sgt P. T. Taran proved himself to be an intrepid commander. In May 1943, in one of the battles for a hill, he was the first to reach the enemy wire obstacles under enemy fire. Having no tool to cut the wire, he pulled up three stakes of the obstacle and held them in bleeding hands until the entire company passed under the wire. Then he rushed an enemy trench and with grenades and submachine gun fire destroyed 21 Nazi soldiers and when his ammunition ran out killed another 2 Nazis with blows of the gun butt. By the Ukase of the Presidium of the USSR Supreme Soviet, he was posthumously awarded the title of Hero of the Soviet Union.

During the war years the personnel of the Interior Troops armored trains fought actively and decisively, and these armored trains were used for securing and defending railroad sections and stations, for supporting garrisons guarding railroad facilities, for combating sabotage enemy groupings and airborne forces in the area of railroads and for escorting lighter trains and important freight as well as for actions as part of the troops directly on the fronts. Thus, six armored trains of the 23d NKVD Division over 2 years of the war at the distant and near approaches to Leningrad and in Karelia conducted 184 battles and intense shellings of the enemy. In the defense of the city the armored trains No 26 and 28 were used for intense shelling as mobile artillery batteries.(8)

In the battles of Kiev, the personnel of armored train No 56 fought courageously under the command of Sr Lt P. K. Ishchenko, having destroyed in July-August 1941 an enemy bomber, 11 tanks, 5 armored tractors, 2 artillery batteries and up to 700 enemy infantry. For courage and heroism shown in battle, 71 men from the armored train crew received governmental decorations.(9)

The **sniper movement** became widespread in the units and formations of the Internal Troops. Even in peacetime in each platoon of the NKVD Troops there

were two trained snipers. With the start of the Great Patriotic War, the sniper movement in the Internal Troops became a mass one. In November 1941, in the battles for Leningrad snipers from the 1st NKVD Division, MSgt I. D. Vezhlyvtsev and Red Armyman P. I. Golichenkov opened up the score for destroyed Nazis. Following their initiative, the NKVD Troops selected sniper pairs and combat rivalry commenced. By 20 August 1942, P. I. Golichenkov had destroyed 140 Nazi soldiers and officers and I. D. Vezhlyvtsev 134. By an Ukase of the Presidium of the USSR Supreme Soviet of 6 February 1942, these courageous and skilled soldiers received the title of Hero of the Soviet Union.

On 22 February 1942, in the aim of giving the sniper movement a broader scope, a rally of Leningrad Front snipers was held. This was attended by 65 men who over 4 months had destroyed 4,835 enemy soldiers and officers.(10)

The sniper movement became largest from May 1942. As was pointed out in the report of the NKVD to the State Defense Committee [GKO] in the development of the sniper movement in the NKVD troops, of the 27,604 snipers trained during the year (from May 1942 through May 1943), some 14,989 had undergone combat duty in the Soviet Army units at forward positions and during these had killed or wounded 182,445 Nazi soldiers and officers.

The Soviet government had high regard for the combat contribution of the snipers from the NKVD Troops to the common cause of victory over the enemy. For the steadfastness, courage and valor shown, 2,289 snipers by the summer of 1943 had received orders and medals of the USSR.

The Internal Troops during the years of the Great Patriotic War were an **important source for organizing formations and field forces for the operational army.** At the end of June 1941, upon the assignment of the VKP(b) [All-Union Communist Party (Bolshevik)] Central Committee, the USSR SNK [Council of People's Commissars] and Headquarters, on the territory of the Moscow-Military District, the NKVD Troops began to organize 15 rifle divisions. In each of these divisions from the personnel of the NKVD Troops they assigned 500 command and supervisory personnel and 1,000 junior commanders and rank-and-file. The remaining men were called up from the reserves.(12) These divisions were organized over a period of 15-20 days and incorporated in the armies of the Reserve, Northern and Western Fronts. A number of officers and generals from the NKVD Troops were assigned to command and political positions in the operational army. Thus, the Deputy People's Commissar of Internal Affairs for Troops, Lt Gen I. I. Maslennikov, became the commander of the 29th Army and subsequently he successfully led other armies as well as fronts. The Chief of the Operational NKVD Troops, Lt Gen P. A. Artemyev, was appointed the commander of the Moscow Military District while the divisional commissar of the NKVD Troops K. F. Telegin was assigned the chief of the district political directorate and subsequently he also became the military council member of the First Belorussian Front. The newly organized armies took an active part in the Smolensk Defensive Operation. Thus, the 29th and 30th Armies which included six divisions of personnel from the NKVD Troops at the end of July 1941 launched a counterstrike on the general axis of Smolensk. After the Smolensk Battle, these formations as part of the Soviet Army troops took an active part in the Battle of Moscow.

On 14 October 1942, the USSR NKVD was ordered to organize a separate NKVD army consisting of six divisions. On 1 February 1943, this was turned over to the operational army as the 70th Army and in mid-February was included as part of the Central Front. During the Kursk Battle it participated in repelling the attacks of the shock grouping of the 9th Nazi Army which was endeavoring to break through to Kursk, and then with the going over of the Soviet troops to a counteroffensive, in the Orel Operation. Subsequently, the 70th Army as part of the First and Second Belorussian Fronts successfully routed the enemy in the Lublin-Brest, East Pomeranian and Berlin Offensive Operations. For courage, valor and skill during the war years, thousands of men from the army received orders and medals and 78 of them received the title of Hero of the Soviet Union. By the end of the war, all six divisions included in the 70th Army in its organization had been awarded orders and received honorific designators.

As a total during the war years the USSR NKVD organized 29 divisions for the operational army or transferred them to the USSR People's Commissariat of Defense.(13) In addition to this, separate units and subunits of the Internal Troops were also transferred to the front.

One of the important tasks which the Internal Troops performed during the years of the Great Patriotic War was **their involvement in securing the rear of the operational army.** From the very first days of the war on each front directorates of the NKVD Troops were set up to secure the rear. The chief of the NKVD Troops for securing the rear of the front, in being under the USSR NKVD, in operational terms was under the military council of a front and carried out all its instructions to organize the security of the rear.

The main tasks of the Internal Troops which defended the rear of the operational army included: discovering and eliminating enemy spies and saboteurs, groups of Nazis remaining in the rear of the Soviet troops after defeating the main enemy groupings, reconnaissance detachments, securing lines of communications at certain areas and monitoring the observance of frontline conditions. As occupied territory was liberated from the enemy, the Internal Troops were removed from the fronts and continued to exercise their immediate tasks.

In line with the entering by our troops of the territory of Romania, Poland, East Prussia, Czechoslovakia and Hungary, the need arose of securing the lines of communications and maintaining order on the territory between the USSR state frontier and the boundary of the front rear. This task was entrusted to the Internal Troops.

During the war years the operational units of the NKVD Troops carried out important tasks. They stood patrol and guard duty, they protected important state and party-governmental institutions and public order, and combated parachutists, saboteurs, spies, disorganizers of the rear and violators of established order. In addition, in cooperation with the police, the operational units and subunits were concerned with eliminating the consequences of air raids and evacuating the population in extraordinary circumstances.

In order to prevent the scattering of the forces of the advancing field forces and formations of the Soviet Army, the GKO in its decree of 4 January 1942 entrusted the Internal Troops with the execution of all tasks related to organizing and standing garrison service in the liberated areas.

The **guarding of industrial installations** was an important part of the official and combat tasks of the NKVD Troops during the war years. After many enterprises had been converted to producing defense products and the defense plants had been evacuated to the east of the nation, the efforts of enemy intelligence were intensified. In line with this it was essential to additionally put the most important enterprises under military security. With the outbreak of the war some 250 installations of 22 people's commissariats were newly put under security of the NKVD Troops. By converting to the garrison method of service it was possible to reduce the number of personnel without lowering the scope of the official tasks and additionally put a significant number of installations under security.

In wartime the **security of rail transport** assumed particular significance. From the very first days of Nazi aggression, the scope of official tasks for the units and formations of the NKVD troops guarding railroad facilities increased significantly. The troops guarded more than 3,000 installations on 54 of the nation's mainlines. The Internal Troops began guarding not only bridges and tunnels on the railroads, as had been the case previously, but also the station and line railroad facilities, freight and ticket offices and escorted cars with the most important railroad freight.

In the final stage of the war, the **combating of bourgeois-nationalist bands** in the western regions of the Ukraine and Baltic became an important mission of the Internal Troops. By the spring of 1945, the Internal Troops, relying on the aid of the party and soviet organizations and the support of the population, had dealt a major defeat to the bandit formations, having eliminated the main major bands.

These are certain areas in the activities of the Internal Troops during the years of the Great Patriotic War. The given materials convincingly show that the Internal Troops during the period of the war against the Nazi invaders made a marked contribution to the victory of the Soviet people over Nazism. More than 200 men of the Internal Troops received the high title of Hero of the Soviet Union and tens of thousands were awarded orders and medals of the USSR.

FOOTNOTES

1. Author's estimate.
2. "Vnutrenniye voyska v Velikoy Otechestvennoy voyne 1941-1945 gg. Dokumenty i materialy" [The Internal Troops in the Great Patriotic War of 1941-1945. Documents and Materials], Moscow, Yuridicheskaya literatura, 1975, pp 89-91.

3. The combat on this defensive line and the participation of the 21st NKVD Division in it is described in the novel by A. Chakovskiy "Blokada" [Blockade].
4. "Vnutrenniye voyska v Velikoy...", p 307.
5. Ibid., p 408.
6. [Not in text]
7. Ibid., p 18.
8. Ibid., p 119.
9. "Na linii ognya" [On the Firing Line], Moscow, Yuridicheskaya literatura, 1975, p 96.
10. "Partiyno-politicheskaya rabota v Sovetskikh Vooruzhennykh Silakh v gody Velikoy Otechestvennoy voyne" [Party-Political Work in the Soviet Armed Forces During the Years of the Great Patriotic War], Moscow, Voenizdat, 1968, p 85.
12. "Vnutrenniye voyska v Velikoy...", pp 544-545.
13. Author's estimate.

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SPEECH OF MAR ROTMISTROV AT 1946 CONFERENCE ON BERLIN OPERATION

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 9, Sep 85 (signed to press 23 Aug 85) pp 43-50

[Conference Report under the rubric "Documents and Materials": "From the Report of the Commander of the Armored and Mechanized Troops of the Group of Soviet Troops in Germany, Mar Armored Trps P. A. Rotmistrov at a Military Scientific Conference to Study the Berlin Operation"]

[Text] A military scientific conference on studying the Berlin Operation of the First Belorussian Front was held in the Group of Soviet Forces in Germany on 9-12 April 1946. The conference's work was led by the Commander-in-Chief of the Group of Soviet Forces in Germany, Army Gen V. D. Sokolovskiy. Participating in it were 349 generals and senior officers including representatives of the General Staff, the General Staff Military Academy imeni K. Ye. Voroshilov, the Military Academy imeni M. V. Frunze and the Military Academy imeni F. E. Dzerzhinskiy.

At the conference a report on the Berlin Operation and the participation of the troops of the First Belorussian Front in it was given by the Chief of Staff of the Group, Col Gen M. S. Malinin. Also heard were seven co-reports on the artillery, air, engineer, political and logistical support for the troops of the front during the operation as well as on the organization of signals and the use of the tank troops.

Below an abbreviated text is given from the report by the Commander of the Group Armored and Mechanized Troops, Mar Armored Trps P. A. Rotmistrov.

The Use of Tank Troops in the Berlin Operation

As is known, the Berlin Operation was preceded by the Warsaw-Poznan Operation and then the Pomeranian Operation in which the tank troops of the First Belorussian Front played a significant role. The German Command considered it most likely that we would advance from a bridgehead to the north of Kustrin and launch a strike against Berlin from the east and northeast.

Characteristic in the position of the enemy troops during this operation was the bringing of the tanks and assault guns as close as possible to the infantry battle formations. This made it possible for the enemy to commit

them to battle on the first day of our offensive. Such positioning was a consequence of the desire of the Nazi Command to halt our offensive on the distant approaches to Berlin.

Proceeding from its suppositions on the use of large tank forces by the Soviet Command, the enemy equipped its defenses on the Berlin sector primarily in antitank terms. In addition to the known methods of conducting reconnaissance, it also organized a tank observation and warning service. The posts were set up around Berlin in a radius of 50 km. Moreover, the antiaircraft artillery for the defense of Berlin was also used to combat tanks. In the population points bazookas were widely used for destroying tanks, motor vehicles and self-propelled artillery mounts [SAU] of our troops.

The defenses on the streets of Berlin consisted in antitank fortifications at the crossroads and all-round defense of industrial enterprises. Corner houses were also used as strongpoints. A majority of the streets had been barricaded and antitank and antipersonnel minefields had been set out in front of the barricades. On the main streets and at the crossroads the corner houses had been equipped with loopholes for firing guns and small arms.

All the enemy defenses, both the forward edge and the rear defensive lines, had been saturated with a large number of field and antitank artillery, mortars and close combat weapons to be employed against tanks (antitank rocket launchers and bazookas). It must be pointed out that the German Command had succeeded in significantly strengthening the defenses and achieved a situation where the created fortifications were stubbornly defended by the troops.

On the Berlin sector the basis of antitank defense consisted of: the firing of artillery, assault guns and tanks combined with man-made fortifications of the field type (antitank trenches, rivers, canals and minefields), particularly in the first and second defensive lines; the mining of likely tank approaches, roads and bridges; the creation of defendable felled areas in forests and barricades in defiles and population points; ambushes by tank-killing groups (bazooka gunners) everywhere where tank traffic was possible.

The dense network of population points and the large number of man-made obstacles on the roads as well as the impossibility of moving off the highways greatly impeded the maneuvering of the tank formations and the launching of massed tank attacks even after the enemy field defenses had been pierced. The rugged terrain, the water obstacles, particularly the canals, in a majority of instances with concreted banks, and the forested areas made it possible for the enemy to organize a strong, deeply echeloned defense and put up stubborn resistance to the advancing troops.

Thus, the Berlin Operation differed sharply from the Warsaw-Poznan one in terms of tank troop operations. Here there was no operational expanse. An enemy rear was also lacking where our tank troops could maneuver, disrupting communications, control and so forth. Actually the enemy rear did exist to the west of Berlin. Consequently, for coming out in the operational expanse it was essential to pierce the solid defenses of the Nazi troops to a depth of over 100 km and take Berlin and this was the aim of the operation.

Preparation of the tank troops for the operation. From mid-March 1945, the tank troops of the front had received a large number of young crews arriving from the plants with the equipment. Moreover, many crews which had participated in battle still did not have sufficient experience in fighting in large population points. For this reason, combat training for the units was organized on the broad use of the experience of battles conducted in January-February 1945, although at Berlin the nature of combat was completely different. In order in the time remaining until the start of the operation to train the crews, subunits and units for the forthcoming battles, intense combat training was carried out in the front's tank units aimed primarily at preparing the crews (a squad in the motorized infantry) and shaping up the platoon and company.

In the training of the staffs of the tank and mechanized troops, particular attention was paid to working on functional duties and organizing cooperation and command in the course of combat. Moreover, for the units which had arrived from the Headquarters Reserve (the 7th and 67th Guards Heavy Tank Brigades), after reequipping them with new weapons (the IS-2 tanks instead of the T-34), a number of exercises was carried out to exchange experience on the use of heavy tanks in offensive combat. For this they drew upon the staff and officer personnel of the 11th Guards Heavy Tank Brigade which had participated in the Warsaw-Poznan Operation.

In the course of combat training special attention was paid to the training of officer personnel on the platoon-battalion level. Here the main emphasis was put on the command of a subunit in the difficult forms of offensive combat. Considering that the tank troops in the course of the operation had to cross numerous water obstacles, on all levels they worked out the questions of crossing water obstacles using regulation and makeshift equipment employing smokescreens. In addition, in the all-arms armies, joint exercises were carried out with the close support tanks and the infantry which the tanks were to support in the course of the operation. The superior staffs (of the corps and armies) conducted a series of command-staff exercises in working out offensive combat under the conditions of breaking through the deeply echeloned enemy defenses. As a result of the combat training carried out in the tank and mechanized troops, the skills of the crew and the platoon were significantly increased and this produced positive results in the course of combat.

The unloading of the arriving materiel was carried out by the staff of the armored and mechanized troops of the front at the stations of Schwiebus, Topper and Reppen which were from 20 to 80 km away from the front line. This provided an opportunity with well organized unloading of the trains and a secure air cover for the unloading areas to ensure the rapid moving up of the tank columns to the concentration area of their units.

In the aims of surprise and deception, all the trains carrying tanks (with the exception of the first party of five-six trains) were camouflaged as hay at the Praga-Warsaw Station. The equipment after unloading from the trains was concentrated in nearby forests and not moved during the day. Officer-manned checkpoints were set out for supervising this measure at the roads by the railroad stations. In order to create the appearance of the concentration of

tanks in an area to the northwest of Grunberg, using the equipment of the 1st Guards Tank Army during the day dummy tanks were moved back and forth from the area of Schwiebus Station to the south and southwest. Moreover, trains with dummy tanks were dispatched from Landsberg Station to the east. However, it was still not possible to fully conceal the arrival of the two tank armies on the front.

By the start of the operation, all the tank formations and units (with the exception of two tank armies, the IX Tank Corps, three battalions of armored trains and the 244th Tank Regiment which was expecting equipment from repair facilities) were put under the all-arms armies for operating as close support groups (the IX Tank Corps was the army echelon for exploiting the success of the 3d Shock Army).

The 2d Guards Tank Army and the IX Separate Tank Corps as well as a number of other units which participated in defeating the Vistula Armies in Pomerania and the 1st Guards Tank Army in destroying the Danzig grouping, after completing the operations began to move up to the jump-off areas for participating in the Berlin Operation. The 2d Guards Tank Army moved under its own power from the Altdamm area to the forested region to the east and south of Soldin. The 1st Guards Tank Army by the 4th week of March by a combined march (the motor transport under its own power and the equipment by rail) arrived from the Gdynia area to an area to the southwest of Schwerin (25 km to the southeast of Landsberg). The equipment arriving from the Gdynia area was unloaded at Landsberg and Zanoeh Stations. The IX Tank Corps traveled under its own power from the Altdamm area to an area to the southwest of Berlinchen. The XI Tank Corps after a portion of its forces had fought to broaden the bridgehead and destroy the Kustrin enemy grouping, remained on the bridgehead to the southwest of Kustrin. During the period of the regrouping of the all-arms armies, the tank units were not pulled back to the bridgehead.

From 10 through 14 April 1945, all the units comprising the close support groups were moved to the bridgehead. By the end of 14 April, there were already 1,273 armored units on the bridgehead (including the tanks of the XI Tank Corps which in operational terms had been put under the 1st Guards Tank Army). Due to the small amount of crossings, it was essential to precisely organize the march of the units to them at night and the crossing to the bridgehead.

In organizing the Berlin Operation, extensive work was done to prepare the jump-off positions for the tanks. For each tank (SAU) double caponier was dug during the night (by dawn all work halted and was carefully camouflaged). In addition to this, command posts and observation posts were set up for the staffs and the commanders at the bridgehead. The engineer units of the tank armies and corps, in addition, prepared the routes to the forward edge of the enemy defenses.

During the preparatory period, a great deal of attention was given to the questions of logistic support for the operation and in particular to establishing the requisite supplies: three units of fire for ammunition, three fuelings for all types of fuel and at least five daily rations for food.

After studying the operational directive of the military council of the First Belorussian Front and careful reconnaissance of the terrain, the commanders of the tank armies made their plans.

According to the plan of the commander of the 2d Guards Tank Army, in being committed to the breakthrough the army had an operational configuration of two echelons. In front were the strong forward detachments. The main grouping was concentrated on the right flank of the army: to the right the IX Guards Tank Corps and to the left the XII Tank Corps. In the second echelon was the I Mechanized Corps. The army was to be committed to the breakthrough along four routes (two routes per tank corps). The army reserve was comprised of the 198th Separate Light Artillery Brigade, the 86th Guards Mortar Regiment, the 6th Guards Heavy Tank Regiment and the 16th Separate Motorcycle Battalion.

The plan of the commander of the 1st Guards Tank Army envisaged the committing of the army to the breakthrough in the section of Gusow Station, Dolgelin, after the infantry of the 8th Guards Army had reached a line of Gusow, Seelow, Dolgelin, Alt-Malisch, having all three corps in a line (on the right flank the XI Tank Corps, in the center the XI Guards Tank Corps and on the left flank the VIII Guards Mechanized Corps). The 64th Guards Tank Brigade, the 11th Guards Heavy Tank Regiment and the 19th Self-Propelled Artillery Brigade remained in the army reserve. The army artillery group was made up of the 197th Separate Light Artillery Brigade and the 316th Separate Rocket Launcher Regiment. Two routes (a total of six) were assigned for committing each tank and mechanized corps to the breakthrough.

Proceeding from the plans of the commanders of the tank army and the commander of the 3d Shock Army, the success of the all-arms armies was to be developed simultaneously by the five tank corps and one mechanized corps. One other mechanized corps (the I Mechanized Corps) was also readied for fighting in the first echelon.

Thus, on a front of 22 km, for exploiting the success some 1,570 tanks and SAU were to be committed simultaneously and this was 71 tanks and SAU per kilometer of the overall area for committing the tank armies and corps to the breakthrough (without the close support tanks).

The total depth of the missions for the tank armies in the operation (reaching Berlin) was 65-70 km (from the infantry bypass line) and this demanded a rate of advance of 32-35 km a day.

The VIII Guards Mechanized Corps which was to fight on the exposed flank of the 1st Guards Tank Army was given the mission of supporting the army left flank by sending out screens and by a simultaneous attack on the Storkow axis the corps was to skirt the forested area to the east of Erkner, cut the Berlin--Frankfurt-an-der-Oder highway and then attack Berlin from the south.

The tank armies were to organize operations in such a manner that for 2 days they would fight independently in Berlin, as according to the plan of the operation the all-arms armies would reach Berlin only on the 4th day.

The planned line for committing the tank armies to the breakthrough coincided with the strongest enemy defensive position along the Seelow Hills and the actions of the tank armies and their rapid approach to Berlin would depend upon how quickly the all-arms armies crossed this line.

Actions of the tank troops in the Berlin Operation. During the night of 15 April 1945, the formations and units of the 2d Guards Tank Army marched from the concentration area of Soldin to the assembly area (it was also the jump-off area for crossing the Oder). The army had two bridge crossings in the area of Alt Drewitz and with precise organization of the crossing these could fully ensure the prompt reaching of the jump-off areas.

The moving up of the 1st Guards Tank Army from the concentration area (a forest 12 km to the south of Landsberg) to the jump-off areas started on the night of 15 April with the forward detachments of the corps, the main forces of which by 0600 hours on 15 April were concentrated in their designated areas.

Thus, by the start of the Berlin Operation, that is, by 0600 hours on 16 April 1945, the armored formations had reached the assembly areas and were in full combat readiness. By this time the IX Tank Corps, the IX Guards Tank Corps, the XII Guards Tank Corps and the XI Tank Corps and the forward detachments of the XI Guards Tank Corps and VIII Guards Mechanized Corps (one tank brigade each) were at the bridgehead. By 1400 hours on 16 April, all the combat units of the 2d and 1st Guards Tank Armies had reached the bridgehead.

Because of the heavy concentration of troops on the Kustrin bridgehead and the predominance of open terrain here, great difficulties arose in positioning and camouflaging the tank units in the jump-off areas. The commanders of the tank armies and tank corps and their staffs carried out extensive work to organize the covert moving up of the troops to the jump-off areas and their camouflaging. The digging in of the tanks was the main method of camouflaging the tanks in the jump-off areas and simultaneously for protecting them against enemy artillery shelling.

With the start of the artillery softening up, the commanders of the tank corps and brigades had observation posts in the battle formations of the rifle divisions and the tank army commanders on the sectors of the main thrust of the all-arms armies.

In the course of a reconnaissance in force, the reinforced battalions in a number of areas drove 2-3 km into the main defensive enemy area and forced the enemy to commit all the tactical reserves to combat.

The conducted reconnaissance told very favorably on the subsequent operations of the tank units and formations fighting in the close support groups. We obtained valuable information on the terrain and the enemy antitank defenses, and because of this excessive losses were avoided in the minefields and from the Nazi antitank artillery.

On 16 April 1945, at 0530-0630 hours, after a 35-40-minute intense artillery softening up, the troops from the all-arms armies of the First Belorussian

Front, including the armies supporting the commitment of the tank formations to the breakthrough (the 3d Shock Army, the 5th Shock Army and the 8th Guards Army) went over to a general offensive from the bridgeheads to the west of Kustrin. The terrain of the enemy forward edge with the start of the infantry and tank attack was illuminated with the beams of 143 searchlights concentrated on the breakthrough areas.

The troops advancing in the center (the 47th Army, the 3d Shock Army, 5th Shock Army and the 8th Guards Army), having initially encountered weak and then increasing enemy resistance, broke through the first line of enemy defenses and reached the line of Alt, Wustrow, Neutrebbin, Malnow.

At 1600 hours, the troops of the 5th Shock Army and 8th Guards Army had reached the second enemy defensive line running along the line of the Seelow Hills where they encountered strong and organized fire resistance.

The commander of the front, in assessing the situation which had arisen in the second half of the day, saw that the task of the first day of the operation was not being fulfilled by the all-arms armies and the stiffening enemy resistance on the line of the Seelow Hills could lead to an undesirable pause at the very outset of the operation. In the aim of strengthening the thrust on the main sector, at 1630 hours he ordered the 1st and 2d Guards Tank Armies to be committed to battle with the aim of breaking through the second enemy defensive line together with the infantry of the 5th Shock Army and 8th Guards Army.

In taking the decision to commit the tank armies to battle for breaking through the enemy defenses, the commander of the front foresaw that in the developing situation it was impossible to wait for a "clean breakthrough" for committing the tank armies and, on the other hand, the insignificant depth of the task confronting the tank armies (a distance of 65 km to Berlin) and the heavy concentration of this space from the Oder River to Berlin with defensive lines excluded the broad maneuvering of the mobile troops.

In turn, the command of the tank armies did not exclude the possibility of the broadening of enemy defenses and for this reason the forward detachments from the corps of the tank armies, in remaining in complete readiness, moved along their axes behind the advancing infantry while the reconnaissance bodies of the forward detachments fought in the infantry battle formations. Here there was a network of forward observation posts [PNP], one from the forward detachment, two from a corps and three from the army staff. In addition, contact was clearly organized with the reconnaissance bodies of the all-arms armies. The main forces of the tank armies moved up behind their own forward detachments. These measures ensured a detailed study of the enemy and a readiness to rapidly deploy and begin combat.

Upon receipt of the order from the commander of the front, the 2d Guards Tank Army with two tank corps (IX and XII Guards Tank Corps) and the 1st Guards Tank Army with the forward detachments and vanguard brigades of the corps went over to the offensive with the mission together with the 5th Shock Army and 8th Guards Army, to break through the enemy defenses, to pass the infantry, come out on their own axes and develop an attack on the general Berlin axis.

However, the tank armies encountered stubborn resistance on the second defensive line which our infantry had reached by this time.

By 1900 hours, the commander of the front ordered to continue the offensive at night at whatever the cost and complete the breakthrough of the enemy defenses; in the event that the enemy put up strong resistance and the armies did not break through, on the morning of 17 April the offensive was to be organized together with the rifle formations.

In cooperating with the all-arms formations, the tank armies continued nighttime fighting and by 1200 hours on 17 April, the 2d Guards Tank Army, having advanced insignificantly on the sector of Neunzigert, Neutrebbin, Gusov, with the IX Guards Tank Corps and XII Tank Corps reached the natural antitank line in the enemy defenses, the Frielandersstrom and Alte-Oder Rivers.

The 1st Guards Tank Army during the night of 17 April, having moved up all the artillery to the forward edge and in cooperating with the 8th Guards Army, at 1000 hours, after a 30-minute artillery softening up, began the assault on the Seelow Hills. Its commander, seeing that frontal attacks on the Seelow enemy defensive center, with the very disadvantageous terrain for tank operations (the steep slopes of the hills) would lead to high losses, took the decision and had the XI Tank Corps outflank Seelow to the north while the XI Guards Tank Corps and VIII Guards Mechanized Corps did the same from the south.

The rate of advance continued to remain extremely low and the fighting on the intermediate lines assumed a stubborn nature. The commander of the front demanded that the army commanders increase the rate of advance.

When our infantry reached the water barriers, the tanks supported the infantry crossing with their fire and then crossed themselves. For this reason they could not move away from the infantry but crossed the enemy defenses with the infantry.

On the axis of the main thrust, the offensive by the formations of the 47th Army, the 3d Shock Army and the 5th Shock Army, in cooperation with the 2d Guards Tank Army and the IX Tank Corps, developed more successfully, although on 18 April the rate of advance was also very low, as the tank formations from the 2d Guards Tank Army and the IX Tank Corps, in reaching the water obstacles on 17 April, were forced to cross them with a portion of their forces, to fight for the capturing of a bridgehead and put up crossings. The loss of speed in the attack of the tank troops on these water barriers undoubtedly told on the rate of advance of the other branches of troops. For shortening the pause in the active advance of the tank troops, the commander of the 2d Guards Tank Army on 17 April took a decision to commit the I Mechanized Corps on the left flank of the army in the aim of capturing the crossings over the Alte-Oder River and rapidly coming out on the axis of the XII Guards Tank Corps. In committing the I Mechanized Corps to combat, consideration was given to the great mobility of precisely the mechanized troops under the difficult terrain conditions.

Having broken through the enemy defenses on the line of Platkow, Gusov and having captured the crossings over the Alte-Oder and Fliess Rivers, the

I Mechanized Corps provided an opportunity for the unobstructed commitment to the formed breach of the XII Guards Tank Corps which during 18 April had fought actively together with units of the I Mechanized Corps solely with the 48th Guards Tank Brigade.

After the crossing of the Stoberrow River by the I Mechanized Corps, the XII Guards Tank Corps followed and it by 2100 hours was fully concentrated in the forests to the northeast of Riegenwalde.

With the reaching of Riegenwalde by the I Mechanized Corps and the 48th Guards Tank Brigade, that is, on the sector of the left flank of the IX Guards Tank Corps, the enemy on this front lessened its resistance, retreating to the northwest. The IX Guards Tank Corps which at 1200 hours on 17 April had reached the Frielanderstrom River and until the morning of the following day fought ineffective stubborn battles for a bridgehead and crossings which the enemy repeatedly destroyed with artillery shelling. It was then able without significant losses to cross the Kwappendorfer, a canal in the area of elev. 6.2 and, fighting with its forward detachment (the 33d Motorized Rifle Brigade), by the end of 18 April reached the line of elev. 66.3 (to the east of Meglin), 1 km to the northeast of Bazlow, that is, on the level of the I Mechanized Corps.

During 19 April, the troops of the 2d Guards Tank Army and the IX Tank Corps on terrain comparatively favorable for tank operations and maneuvering, advanced up to 30 km in hard fighting.

On the front of the 1st Guards Tank Army, that is, in the area of the 8th Guards Army, the situation was as follows. On the right wing and in the center of the army battle formations, the troops were advancing along the Kustrin--Berlin highway. During this time the left-flank army formations, in repelling numerous enemy counterattacks and strikes by its reserve units, were held up in the area of Diedersdorf, Marxdorf. Subsequently, as the troops advanced on the right flank, the army was forced to stretch out its left flank. On 19 April, the enemy threw its last reserve, the 23d SS Mechanized Division, against the army's left flank.

During 20 and 21 April, the tank formations advanced up to 40 km. The 1st Guards Tank Army during this period was advancing under more difficult conditions than the 2d Guards Tank Army. The zone in the area of the army was broken up by a network of lakes and canals and this greatly impeded tank operations. On the other hand, as a consequence of the lag of the 69th Army, the exposed left flank of the 1st Guards Tank Army diverted significant forces to support it from the south opposite the Frankfurt grouping of Nazi troops. By the end of 21 April, the 1st Guards Tank Army, having crossed the external perimeter of fortifications of Berlin, moved across the water barrier on the line of Lakes Straus, Stieniz, Dimertz and cut the circular autobahn around Berlin.

Thus, in contrast to the Warsaw-Poznan Operation, during the first stage of the Berlin Operation the armored and mechanized troops of the front encountered organized enemy resistance on all the defensive lines covering the Berlin axis to the entire depth from the Oder River to the center of Berlin.

To a depth of 65-70 km, the enemy had eight prepared and strongly fortified lines. Under these conditions the possibility of extensive maneuver was excluded for the tank armies and the separate tank corps.

The all-arms armies were unable to break through the Nazi defenses to the entire depth due to their echeloning and saturation with weapons. At the same time the tanks were unable to fight also without the infantry as the enemy made skillful use of close combat weapons and tanks for fighting against our tanks. This forced the tank armies in a breakthrough to fight in close cooperation with the infantry. The use of the tank armies for breaking through the tactical enemy defenses and the subsequent increasing of the force of attack by the all-arms armies made it possible for the shock grouping of the front to successfully cross the entire depth of the enemy defensive system.

The tank formations were able to operate independently only after the enemy defensive line had been broken through to a depth of 20-40 km, when as a result of successive strikes the fire plan had been disrupted and disorder introduced in the command of the Nazi troops.

A particular feature of this period of the offensive was the limited maneuver of the tank formations. Under the conditions of forested terrain with numerous man-made and natural antitank obstacles, the mechanized corps (I Mechanized Corps and VIII Guards Mechanized Corps) showed greater effectiveness of actions.

In the course of the fighting on the external perimeter of the Berlin Fortified Area (21-22 April), it was discovered that the advancing troops were not sufficiently flexible for fighting under the conditions of a large city. At the time of approaching Berlin, the troops were unable to promptly reorganize in accord with the instructions of the front's commander for fighting in large cities. This also led to a drop in the rate of advance.

The commander of the front considered that if our troops continued subsequently at such a slow rate of advance, the enemy would be able to recover and strengthen the defenses of the city. On 22 April, he demanded that the commanders of the armies organize continuous around-the-clock fighting in Berlin and for this there would have to be daytime and nighttime shock subunits which would include tanks and tank subunits.

Having carried out the instructions of the front commander, the troops fighting for Berlin reformed their battle formations, having strengthened the infantry shock groups with tanks, and continued the advance.

The offensive in a large city demanded a fundamental change in the forms of fighting by our troops. The shock group became the central figure in the configuration of the troop battle formations. The shock groups which were organized in the units of the tank armies during the preparatory period for the Berlin Operation by the start of the storming of Berlin had actually disintegrated as a result of the intense fighting on the approaches to the city. They had to be restored in the course of fighting. This circumstance as well as the acute lack of infantry in the tank armies significantly reduced

the effectiveness of the shock groups. The shock groups organized in the all-arms armies and reinforced by tanks from the attached tank corps and tanks from the close support groups, due to the sufficient amount of infantry, showed great stability and viability. This was explained by the fact that without the appropriate infantry and combat engineer support the tanks of the shock groups were knocked out by the fire of bazookas and other close combat antitank weapons. Conversely, protected from close antitank fire the tanks provided a greater effect in the moving up of the assault groups, weakening and destroying the enemy firing positions.

It must be pointed out that neither the medium machine guns nor the PTR [antitank rifle] in the shock groups played a noticeable role, as due to their heaviness they restricted the mobility of the crews. Their role was more successfully carried out by tanks which were capable of providing both machine gun and antitank fire in street battles and the tank crews did not suffer losses from enemy machine gun and submachine gun fire, while the machine gun and PTR crews did not have these advantages.

Depending upon the difficulty of the mission, the shock groups fought along one or two streets. In the first instance each assault group fought along one side. If both assault groups were fighting on one street, then the tanks and the artillery were used to reinforce both groups. In both instances of shock group actions, the tanks were in the interval between the blockade subgroup and the support subgroup. Each of the two tanks moving ahead along the sides of the street fired down the respective side of the street. The SAU traveling behind the tanks at a distance of 30-40 meters fired with direct laying down the street, neutralizing detected enemy firing points. The two tanks moving behind them at a distance of 30-40 m fired at the upper stories of the buildings, each at the opposite of the street.

The antiaircraft machine guns moved on motor vehicles behind the SAU and destroyed the "surviving" firing points on roofs and in house windows as well as bazookas. The buildings where the enemy put up strong resistance were sealed off. Mortars fired at the roofs of the buildings and street intersections. In encountering rubble and barricades, the infantry under the cover of tank and artillery fire captured them and the combat engineers cleared passageways for the tanks.

The experience of the fighting on the streets of Berlin showed that it was not advisable to commit more than four tanks to a shock group fighting on one street as the actions of the rear tanks were limited by the actions of the front ones and they were unable to fight due to restricted vision.

Upon reaching the central areas of Berlin, the advance of the tanks was greatly restricted due to the large number of barricades and rubble on the streets and the buildings destroyed by aviation.

27 and 28 April were the turning point in the course of the battles for Berlin. The 1st Guards Tank Army made the greatest progress. In cooperating with the 8th Guards Army and the right flank formations of the 3d Guards Tank Army of the First Ukrainian Front, the troops of the 1st Guards Tank Army during 27-28 April captured the eastern part of the municipal district of

Schoneberg while the VIII Guards Mechanized Corps reached the southern bank of the Landwehr Canal and the region of the Tiergarten Park. The IX Guards Tank Corps together with the infantry of the 47th Army by the end of 27 April had captured the area of Potsdam and started to develop an offensive to the east on the Teltow axis.

During 29-30 April, the fighting in Berlin had a particularly fierce nature. Regardless of the desperate resistance by the enemy, the advancing troops moved forward successfully, constantly squeezing the ring around the enemy Berlin Garrison.

In continuing the advance, by the end of 1 May, the troops of the 1st Guards Tank Army and the 8th Guards Army linked up with the troops of the 2d Guards Tank Army in the area of the racetrack, and at 0600 hours on 2 May, the troops of the 3d Assault Army with the IX Tank Corps in the area of the Tiergarten linked up with troops of the 8th Guards Army. The surrounded enemy Berlin Garrison was split into three isolated parts.

Conclusions

In contrast to all other offensive operations conducted by the Soviet Army in the Great Patriotic War where large tank formations, as a rule, were committed to the breakthrough and fought in the operational depth, in the Berlin Operation the tank armies under very difficult terrain conditions crossed a dense network of fortified defensive lines to a depth of 65-70 km. Under these conditions, for the first time the tank armies were used as a means for breaking through the deep enemy defenses.

The forested areas, the abundance of natural and man-made antitank obstacles and the powerful system of Nazi artillery and antitank fire reduced the rate of advance of the tank formations and forced them to constantly maintain close tactical cooperation with the infantry of the all-arms armies during the entire period of breaking through the enemy defenses.

Under the conditions of the Berlin Operation, the mechanized corps demonstrated great effectiveness both in breaking through the enemy defenses as well as in the street battles in Berlin as they included more infantry. For this reason they were better able to fight in breaking through the deeply echeloned defenses and in the city than were the tank corps.

In the battles for Berlin, the shock group was the basic form of battle formation for the units of the tank and mechanized formations. As a consequence of the shortage of infantry in each tank brigade it was possible to organize not more than two or three shock groups which employed up to 20 tanks.

In the Berlin Operation the enemy used large amounts of antitank bazookas and other close combat weapons. For this reason it was necessary for the infantry to first comb the field, since the tanks when fighting independently suffered high losses.

In the Berlin Operation the tank formations frequently employed smokescreens in crossing water obstacles, in protecting the troops against enemy aviation and for creating smoke in fortified buildings in Berlin in storming them. The shortcoming in the use of smoke on crossings was that the smokescreens were set up on small areas and were not set at false crossings.

In the Berlin Operation rapid rates of advance were not achieved because the tank troops were unable to reach the operational expanse, as this actually did not exist. This, in turn, fundamentally influenced the lower rate of advance for the all-arms formations. It is impossible to accuse the tank troops of slow actions, as the general conditions in the given operation did not favor their success. On the other hand, this is also explained by the fact that the tank formations were not prepared previously for breaking through the deeply echeloned defenses together with the all-arms armies and when they had to carry out this mission on 16 April, they were unable to organize cooperation with the 5th Shock Army and 8th Guards Army without sufficient clarity. It was very difficult for the tank formations independently (without infantry) to break through the strong defenses.

With the presence of deep and deliberate enemy defenses full of defensive lines it was advisable to employ the tank armies together with the all-arms armies for breaking through the enemy defenses and for increasing the infantry attack on the main sector. In this instance, when a tank army was to be employed for fighting in a large city with the assigning of an independent area for its advance, it was essential ahead of time, in the preparatory period for the operation, to assign it the necessary number of rifle units for jointly training the infantry to fight with the tanks as part of shock groups.

The Berlin Operation is also instructive in carrying out a rapid maneuver and regrouping within the tank formations. In those instances when a tank or a mechanized brigade broke through the enemy defenses or crossed a water barrier, its success was utilized by the entire corps, committing the remaining units to this breach with their subsequent returning to their own axes. Thus, the successful actions of one corps were utilized by the other army tank corps.

The Berlin Operation is also characteristic and instructive in the fact that the tank units in the course of fighting had to cross a large number of water barriers. It should be pointed out that in the units and formations where there was standard equipment the crossing was carried out more successfully than in those instances where the equipment was of different types. From this it can be concluded that there must be formations and units with the same type of equipment. This frees the engineer troops from the need of putting up different-capacity bridges for the same unit.

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FIGHTERS IN THE STRUGGLE FOR AIR SUPREMACY

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 9, Sep 85 (signed to press 23 Aug 85) pp 62-71

[Article by Hero of the Soviet Union, Candidate of Historical Sciences, Col Gen Avn G. U. Dolnikov, published under the rubric "Local Wars"]

[Text] On the basis of the experience of local wars in the postwar period, attacks against airfields, fire damage to ground air defense weapons and the destroying of enemy aviation in air combat are considered by American specialists to be the basic methods of fighting for air supremacy. Attacks against airfields and fire damage to ground air defense weapons in local wars had been examined on the pages of VOYENNO-ISTORICHESKIY ZHURNAL.(1) The present article examines fighter actions in the struggle for air supremacy.

In analyzing the experience of air combat in local wars, the American journal AVIATION WEEK AND SPACE TECHNOLOGY has written: "For winning air supremacy -- tactical or strategic -- the following essential conditions are necessary: the flight performance of the aircraft and the destructive capability of the weapons should be greater than the enemy's; the number of these aircraft by the start of the operation should be greater than the enemy's; the personnel should have a mastery of the equipment and tactics while the leadership should skillfully dispose of the forces entrusted to it and skillfully control the fighters in combat."(2)

In the Korean War (1950-1953), the first jet fighters were involved in air combat. Their speed, service ceiling and rate of climb surpassed the performance of aircraft from the period of World War II by 1.5-2-fold. Sight and navigation equipment had been improved. However, the high-speed and high-altitude jet fighter as before was armed with machine guns and cannons and its combat capability did not correspond to the improved flight performance. For this reason, the methods of conducting air combat (that is, the methods of destroying enemy aircraft in the air) had changed little.

Advances in electronics significantly more than the successes in developing weapons systems made adjustments in the operational activities of the fighter aviation commanders and staffs. The ground command posts with plotting boards and air situation displays together with the operators of advanced warning and guidance radars began to play an important role in the conduct of air combat.

The group leaders no longer themselves acquired the information about the enemy but rather obtained it by radio from the ground. The early receipt of such information as well as its completeness ensured definite tactical advantages at the start of air combat as the group was able to reform its battle formation and assume a better position before closing in (the attack).(3)

The belligerents in Korea possessed fighter aircraft of the same class (the MIG-15 and the F-86F Saber). The MIG-15 aircraft had a somewhat better rate of climb and surpassed the enemy aircraft in maneuvering at great altitudes. The two 20-mm and one 37-mm cannons of the MIG were opposed by the six 12.7-mm cannons of the Saber. However, the latter was more maneuverable than the MIG at low altitudes.

While in quantitative and qualitative terms the fighter aviation of the belligerents as a whole was equal, the balance of forces prior to the start of intensive air combat must be viewed as better for the American Air Force. The MIG-15 aircraft were received by the Air Force of the Korean People's Army (KPA) in December 1950, and even in September-October American bombers, in accord with the plan worked out for winning air supremacy, had destroyed a majority of the airfields on North Korean territory. The KPA fighters were forced to be based on Chinese territory a significant distance away from the front line.

The mission of the U.S. Air Force over the 2 years of positional warfare included the retention of the achieved air supremacy which could be won after massed strikes against the 34 North Korean airfields. The U.S. air assault forces were thrown in to seal off the combat area. The fighters covered their assault forces by establishing a screen and moving it north beyond the limits of the bomber combat zone. The MIGs endeavored to pierce the screen to attack the American bombers over the strike objectives. Thus arose group air battles involving jet aircraft. "This was the first purely jet air war in history. As a consequence of the specific conditions of waging it as well as the combat properties of the new aircraft, the air engagements were marked by great scope in altitude and sharply increasing speeds.... According to the approximate estimates of the U.S. Air Force, losses during the period of the Korean War totaled around 2,000 aircraft (in addition, the Navy and Marine Corps aviation lost more than 1,200 aircraft). This was from one-quarter to one-third of the total number of the regular Air Force aircraft."(4)

Thus, having destroyed a majority of the North Korean airfields at the outset of the war (even with a lack of resistance from the MIGs), American aviation did not carry out the task of destroying the KPA aircraft in the air. Here it was established that the American aircraft and their weaponry left much to be desired: quantitative superiority was achieved solely due to the strike forces which did not participate in air combat; the level of the professional training of the pilots and commanders was not sufficiently high. The moral superiority was on the side of the young KPA fighter pilots who were fighting against the interventionists.

The Korean War at that time was the sole source of experience in air combat involving first-generation jet aircraft. After generalizing this experience,

chief attention was given to the following: in the first place, to achieving higher speed of flight for the aircraft (even to the detriment of other types of performance such as rate of climb and maneuverability); secondly, to the development of guided air-to-air missiles; thirdly, to automating combat control of the fighters; fourthly, to flight programming for intercepting the air target (chiefly a high-speed non-maneuvering bomber).

The Vietnamese War (1965-1973) provided several object lessons related to air combat. The performance of the American aircraft had noticeably changed. They possessed great speed of flight, they had the capacity to operate under any meteorological conditions and to detect and track visually invisible targets, and they had in-flight radars and automated sight and navigation systems. Thus, the maximum speed of the U.S. Air Force tactical fighter F-4 Phantom corresponded to a Mach number of 2.2. However, such a speed of flight achieved at the cost of a certain deterioration in the maneuvering characteristics of the aircraft, was not required in an actual combat situation. In the skies of Vietnam, maneuvering battles of the "Korean" type developed and not high-altitude interceptions of solitary high-speed targets under difficult weather conditions. The missions carried out by the fighters, as in the case in World War II, were more diverse.

Even during the first raid against North Vietnamese objectives, the Phantoms were assigned to a support wave, and they comprised the escort (direct support) of the attack groups. They kept this mission until the war's end. The escort repelled attacks against the covered groups and were restricted in maneuvering. And the very first air battles showed that the best means (or method) of defense was a maneuver. And maneuverability was precisely what was lacking in the Phantoms developed both to intercept air targets as well as for bombing ground objectives. The North Vietnamese MIG-21 was free of this shortcoming but at the same time was not as fast as the American fighter. For this reason, maneuvering combat was lost by the Phantom aircraft. Nor was the situation salvaged by numerical superiority of the American aviation.

Why have all fighters, starting from the Farman from the time of World War I and ending with the Saber in the Korean War, conducted air battles at speeds close to maximum while the second-generation aircraft in Vietnam did not use this capability? This question has been answered thusly by the journal INTERNATIONAL DEFENSE REVIEW: "The maximum speed of all fighters, including those which left the scene in the 1950's, exceeded cruising speed by only 10-20 percent. The cruising speed of the Phantom, like other fighters of this class, corresponded to Mach 0.8 while the maximum reached $M = 2.2$. But cruising speed available in the transonic area of flight is an important criterion of combat effectiveness. Precisely in this area, regardless of the type of aircraft, the thrust developed by the propulsion unit conforms best with the aerodynamic qualities, that is, the best maneuverability is achieved characterizable by speed, time and radius of turning. In group maneuvering battles each pilot endeavors to turn as quickly as possible for coming out in an area of possible attack or avoiding it. For this reason the aircraft is intentionally introduced into a range of transonic speeds. The greatest value of speed corresponding to $M = 1.6$ was set only for the stages of closing in and breaking off from the enemy. But at speeds in the range of $M = 1.6-2.2$,

virtually not a single second of flight time was recorded in the combat conditions over North Vietnam."(6)

In going through the sound barrier, the radius and time of a steady turn increased to such a degree that the enemies went out of visual range of sight and could not continue combat. Thus, the concept of a high-speed interceptor equipped with automated control systems and popular in the 1950's put the pilots who never entertained the idea of being turned into robots in a disadvantageous situation.

The second-generation jet fighters were already equipped with guided "air-to-air" missiles of the Sidewinder (with an infrared (IR) passive guidance system) and the Sparrow (with a radar semiactive guidance system) types. These were designed to hit nonmaneuvering (slightly maneuvering) air targets and had substantial limitations in terms of the minimum firing range and acceleration. The cannon which was not recognized by intercept theory as a weapon for close maneuvering combat had been removed from American fighters prior to the war in Vietnam. However, practice showed that in those instances when it was impossible to employ missiles in maneuvering combat, there was an acute need for fixed cannons which were not influenced by great accelerations.

The performance of guided aircraft missiles in the 1950's was determined by the supposition that the maneuvering battles of fighter against fighter were a thing of the past. Specialists felt that an interceptor should overtake a bomber and hit it. The use of such tactics in combat stemmed from the necessity of preventing the bombers from firing the "air-to-ground" guided missiles which had a great range. For this reason particular attention was not paid to the performance of weapons which considered the particular features of conducting maneuvering combat. But under combat conditions the reliability of the missiles and their adaptability for conducting air combat were low.(8)

On the basis of the experience of the war in Southeast Asia, foreign specialists derived the following optimum version for conducting combat in the air: in the initial stage using electronic equipment, the air situation would be clarified, then the fighters would be brought to the line for entering combat, after a group attack combat would break up into dogfights of pairs and individual aircraft, while the pilots would assume control of themselves and in close maneuvering combat fight according to the situation. The command post monitoring the situation would provide the necessary information and lead the group out of combat.(9)

Regardless of the difference in flight performance, the fighters of the belligerents in Vietnam (the MIG-21 and Phantom) did not show a sharp difference in terms of the capability of conducting air combat. As was pointed out, the lighter MIG-21 which preserved the traditions of previous fighters was somewhat superior to the Phantom in maneuverability and the equal in speed. This told ultimately on the course and outcome of the air combat.

Under the conditions of numerical superiority for the air enemy, the resistance of the North Vietnamese fighters gradually increased. Not defensive but rather a sharply expressed offensive tactics was the basis for

them. Gen W. Momier who at that time was the commander of the U.S. Tactical Aviation wrote in the journal ORDNANCE: "We encountered offensive procedures which were in some ways hard to parry. This concerned primarily the outstanding guidance of the North Vietnamese fighters from the ground. This was prompt and accurate. In breaking through the air defenses, our attack aircraft were particularly vulnerable when they were carrying a bombload and were limited in maneuvering. The speed of the heavy bombers did not exceed 850 km an hour while the MIGs guided from the ground attacked them from the rear at a high speed. The pilots of the escort groups for the American bombers knew about this procedure but it was still impossible to prevent the losses."(10)

As can be seen, elements of interception remained in the fighter tactics but they were not employed by the American pilots but rather by the North Vietnamese ones. The tactics of surprise, single high-speed attacks using guided missiles with IR homing heads corresponded least of all to the logic of combat for the more maneuverable MIG-21. However, this better conformed to the conditions of combat in the air with high numerical superiority for the enemy. Moreover, close cooperation with modern ground facilities successfully allowed the North Vietnamese fighters to operate at the distant approaches. The high-speed attack was a surprise, it disrupted the enemy battle formations and made it difficult for the enemy to carry out antiaircraft maneuvers and this helped to increase the effectiveness of the antiaircraft missile complexes for destroying the air targets.

The flight personnel in U.S. tactical aviation was to have a complete mastery of the equipment and tactics in order to achieve the successful outcome of air combat. Under the developing situations, the skills of the Phantom crews (the pilot and the weapons system operator) could not be doubted but the focus of their training in keeping with the aircraft's purpose was multipurpose. The journal AIR FORCE MAGAZINE has written that at one time a great deal was spoken favorably about the plans for a multipurpose aircraft. But experience showed the ill-advisability of the decision to entrust one further function to a fighter, that is, delivering "air-to-ground" weapons. The appearance of underwing suspension points led to a strengthening of the aircraft's design and to an increase of the load on the wing. In addition, the flight weight was increased by installing complex and cumbersome equipment. For this reason in employing the aircraft as a fighter this was dead weight which could not be used in air combat and reduced the aircraft's maneuverability.

The idea of the multipurpose employment of a fighter led to a decline in the quality of pilot combat training and all-round aces could not be trained from the pilots. It was beyond many to have equally high training as an air fighter and as an expert in attacking ground targets. For this reason, if one compares the war in Korea, when only fighter pilots fought, with the war in Vietnam, it is not difficult to notice that the modernized "broad profile" aircraft had much higher losses.(11)

The focus and scope of pilot tactical training were also criticized. The sole tactical "doctrine" which was worked out for interceptors over 10 years prior to the war in Vietnam was considered by specialists to be the "double attack." The air target, the bomber, was squeezed between two interceptors and by

firing they parried its defensive maneuver to either side. "The crews were taught to rather launch missiles than conduct air combat the roots of which go far back into the area of military art."(12) The American pilots had to eliminate the gaps in tactical training later on, in the course of combat, and this was always considered undesirable.

The problem of fighter control was even more acute in Vietnam. They had to carry out combat missions beyond the range of ground control centers which received information from the air target detection radars (an air wing of Phantoms was based at airfields in Thailand but fought over Hanoi and Haiphong). In addition, the increased flight speeds and new tactics required greater distances, intervals and separations between the aircraft in their battle formations. The group commander no longer could visually observe the changes in altitude of all the crews in formation and monitor their actions. After going beyond the far limit of the radar detection field established by the forward ground posts, the pilots had to gain information on the situation, as was the case during the period of World War II, independently. The control system, like fighter tactics, urgently demanded improvement. Specialists reached the conclusion that "the key problem of successful air combat is command and control. The conducting of long-range reconnaissance of the air space has become extremely essential."(13)

Soon thereafter a method was found for isolating the blips from moving targets on the background of radar signals returned from the earth's surface. As a result it was possible to have the radar detection and tracking of low-flying air targets. The installation on an aircraft of a surveillance radar with a rotating antenna led to creating airborne radar patrol posts with a range up to 300 km across the entire range of altitudes. The radar detection field was shifted significantly into enemy territory. Later there appeared early warning radar aircraft (EWR) on the basis of which airborne command centers (AWACS) were developed.

The EC-121D and E-2A AWACS aircraft arrived in Vietnam and began patrolling in the air over the Gulf of Tonkin, moving close to the combat area. The AWACS provided the crews with information on the air situation and the appearance of North Vietnamese fighters. In assessing the practical role of the AWACS, the West German magazine WEHRKUNDE has written: "At present, it is not enough to win supremacy in the air over one's own territory to win the war. For this it is essential to enter enemy airspace which the enemy itself can see significantly better. In addition, it is easier for it to create a numerical supremacy by increasing the repelling forces. The EWR aircraft in such a situation can somewhat reduce this advantage and greatly simplify the conditions for the fighting of the aircraft over a large radius."(14)

The experience of the Vietnamese War showed: in the first place, regardless of the great quantitative and qualitative advantage of the aggressor in aircraft, the fight in the air was stubborn and active; secondly, the predominant objects of attack were the enemy attack aircraft which represented the greatest threat to the objectives covered; thirdly, for the North Vietnamese aircraft which did not have either supersonic speed or guided missile weapons, the most acceptable effective tactics was worked out. Loaded with a bombload the American attack aircraft did not go faster than 850 km an

hour. Using the advantage in speed and the camouflage properties of the terrain, the North Vietnamese pilots covertly closed in with the enemy at a low altitude and, not being detected by the airborne control center and cover groups, carried out, as a rule, an effective attack, firing their cannons at almost point-blank range. After the appearance of the supersonic MIG-21 fighters in North Vietnam which were also equipped with guided weapons, the active resistance to the aggressor increased. It must be pointed out that as a whole the loss level of the U.S. Air Force (1.6 percent) was higher than its loss level in World War II (0.9 percent).

By the start of the October War in the Near East (1973), the Israeli Air Force had 403 combat aircraft, including 183 fighters. The efforts of the Phantom well known from the Vietnamese War were supplemented by the Mirage-III, a lighter and more maneuverable aircraft the pilot of which more willingly engaged in close combat, particularly in turns.(15) The heavy multipurpose Phantoms, when necessary, were used as a fighter but did not endeavor to engage in group maneuvering battles. The emphasis was on a surprise missile attack from below in patrolling outside the limits of the enemy radar detection field (from an air ambush). The conditions for such an attack were created by small groups of Mirage-III fighters by false moves in the airspace which were called "provocation to pursuit."

The Israeli aviation in this war began the struggle for air supremacy by neutralizing the ground air defense weapons of the Arab countries, and then over a week (8-14 October) attacked the airfields but this did not produce the expected result (the aircraft on the ground were in reinforced concrete shelters which had been built after the Six-Day War of 1967). In suffering tangible losses, the aggressor endeavored to achieve success in group air battles which developed over Lebanon during the last days of the war. The combat area was selected considering the limited view of it for the Syrian ground radars. However, the necessary prerequisites for achieving success were lacking as there was no quantitative and qualitative superiority in aviation; the training level of the personnel was considered approximately equal; the fighter combat control system was not equipped with new elements (for example, the AWACS). Over the 18 days of the war, the Israeli Air Force lost 115 planes. Since new aviation equipment (in comparison with the Vietnamese War) was not being employed, there were no major changes in fighter tactics.(16)

The next armed conflict in the Near East in Lebanon in June 1982 was characterized primarily by the committing of third-generation jet fighters, the F-15 and F-16, to combat. In developing these aircraft consideration had been given to combat experience in Vietnam: the altitude and speed performance had virtually not changed (the maximum speed of flight of the F-16 was even less than the F-4. See Fig. 1), but the maneuverability indicators, particularly at transonic speeds, had sharply increased. The thrust-to-weight ratio (the ratio of engine thrust to aircraft weight) exceeded one, that is, it was possible to climb in putting on speed. The basic mission of the F-15 which was developed as an aircraft for winning air supremacy was to monitor the airspace in the combat zone. In practical terms this meant searching for aircraft using onboard radar (with a detection range of 80-150 km depending upon the effective reflecting surface of the air target), locking on the

detected target for automatic tracking and hitting it with the AIM-7F Sparrow missiles (a launch range up to 50 km).

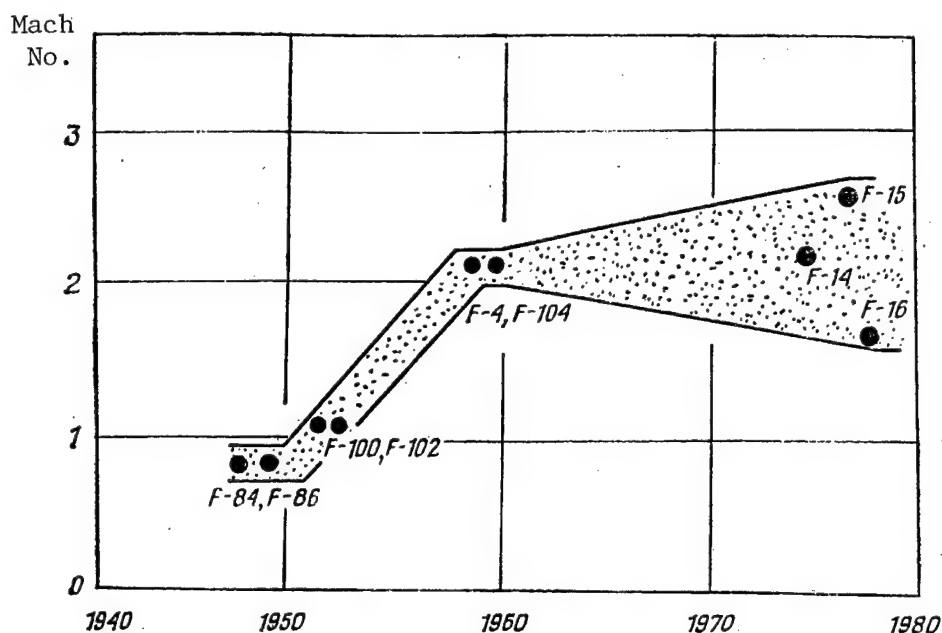


Fig. 1. Increase in Maximum Fighter Speeds in Postwar Period

The F-15 aircraft which was equipped with complex and expensive equipment was 4-5-fold more expensive than its predecessor, the F-4 Phantom. For this reason, the emphasis in air combat was put on destroying the enemy at the longer ranges, that is, prior to the start of close maneuvering where the advantages of omnidirectional weapons with a radar guidance system were lost. In close maneuvering combat the first to engage was the light F-16 fighter which was specially designed for this. It did not have complicated equipment and medium-range missiles but was much cheaper than the F-15 while being its equal in maneuverability. The head-on attack was a new combat element in the air combat tactics. Along with this the old methods were also employed.

The possibility of hitting an air target far beyond its visual range of detection was provided by an airborne command center, the aircraft E-2C Hawkeye which patrolled in the air over the sea off the shores of Lebanon. In providing reconnaissance of the airspace to a great depth with the aid of the onboard surveillance radar, the AWACS initially provided information on the appearance of Arab aircraft and then gave the target designations for the fighters. The pilots themselves did not engage in free search but, having received the coordinates of the object of attack and its characteristics, went immediately into the close-in stage. Command from the AWACS was carried out by radio commands and an automatic data transmission line was lacking between the Hawkeye and the F-15.(17)

The experience of air combat over Lebanon showed that there were serious obstacles still on the path of introducing new elements into tactics. In the first place, with the broad maneuvering of a target, there were gaps in the

guidance of the medium-range missiles (a shortcoming of the radar semiactive guidance method). Secondly, the great relative speed of closing (up to 3,000 km per hour) set a minimum launch range of at least 16-20 km, that is, minimum time remained for aiming with the radar screen. Thirdly, the insufficient reliability of the identification system ("friend-foe") in the complex air situation observed on the radar screen did not exclude the possibility of hitting a friendly aircraft. Considering these limitations the head-on attack (or "omnidimensional combat" in a more general understanding) has still not gained broad (mass) employment. According to the data in the foreign press, in approximately 65 percent of the instances close-combat Sidewinder missiles with an infrared guidance system were employed and aviation cannons in 7-10 percent.(18) This meant that in the tactics of modern fighters maneuvering combat still held its positions firmly.

The struggle for air supremacy in the Anglo-Argentine conflict on the Falkland (Malvinas) Islands in 1982 was noteworthy for the involvement in this (on the side of the Royal Air Force) of vertical take-off and landing (VTOL) aircraft of the Harrier class. These possess a most important quality for a fighter, namely high maneuverability which is achieved not by an advanced wing, as in the F-16 aircraft, but rather due to the possibility of directing the engine thrust vector in flight.

The opponents of the Harrier aircraft in the air battles were Mirage-III fighters known from the local wars in the Near East and considered to be some of the most maneuverable second-generation aircraft. However, in the fight against the Harrier, this maneuverability was not sufficient. In altering the direction of the engine thrust vector in flight, the pilot of the VTOL aircraft sharply reduced the turning radius and time, that is, more quickly assumed a tactically advantageous position which ensured the employment of onboard weapons. The Mirage-III was unable to execute such a sharp turn. Consequently, in the given conflict superiority of one of the sides in air combat was determined by the better quality of the aviation equipment and weapons, by their adaptability to the modern conditions of fighting as well as to the higher skills of the flight personnel. According to the data of the foreign press, English pilots downed 20 Argentine aircraft and helicopters, including 16 by Sidewinder missiles and 4 by cannon fire. The English did not have any losses in these battles.(19)

Thus, the first air battle after World War II was held in Korea in December 1950 and the last on the Falklands in June 1982. Over this comparatively short historical interval of time, the jet fighters of three generations participated in the struggle for air supremacy.

Briefly the particular features of this struggle are characterized in the following manner. The air battles were more effective than in the period of World War II. This is explained by the increased power and range of the weapons (Fig. 2), by the greater role played by surprise (the result of the first attack) as well as by the insufficient equipping of inflight warning equipment for an enemy fighter attack. Up to the mid-1960s, high speed was considered the best means of defense making it possible under bad conditions for the aircraft to escape from the pursuing enemy. This "thesis" was refuted in the course of the Vietnamese War but fighter maneuverability in air combat

had been significantly reduced by this time. Electronic countermeasures had invaded the area of air combat. The intensive use of jamming to an enormous degree helped to achieve surprise in fighter actions.

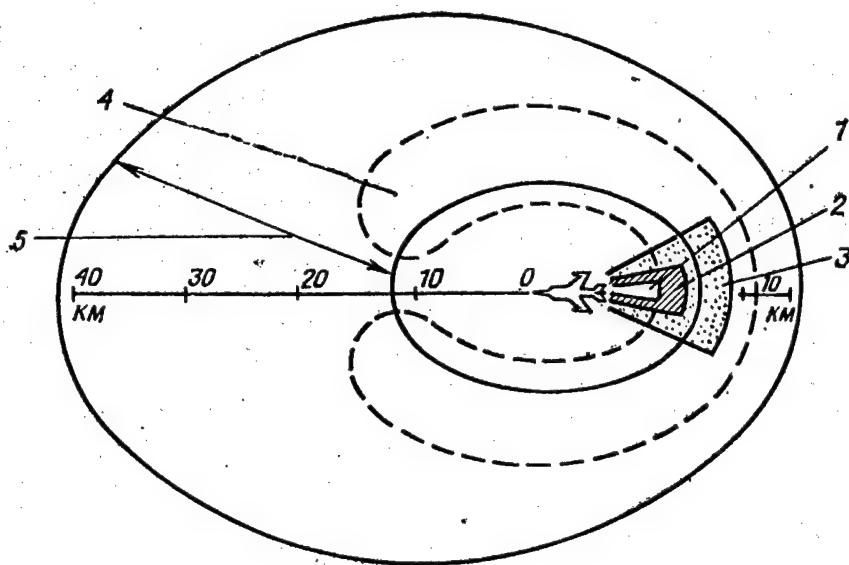


Fig. 2. Broader Area of Possible Attacks
Related to Development of Fighter Weapons

- 1--Cannon weapons
- 2--Guided missile with first-generation IR guidance
- 3--Guided missile with second-generation IR guidance
- 4--Guided missile with third-generation IR guidance
- 5--Guided missile with third-generation radar semiactive guidance

Aircraft speeds had significantly increased and the range of the various weapons used by the aircraft had also risen. In this context the spatial scope of air combat rose and combat itself moved significantly into enemy territory. In order to more dependably protect one's ground forces from air strikes, the fighters had to be committed to battle at the distant approaches. The necessity of the radar monitoring of air operations and the reconnoitering of air space to a great depth also led to the system of modernizing the fighter control system and to the development and use of early warning aircraft.

The penetration of aircraft deep into enemy territory and distant operations required ensuring fighter invulnerability against the fire of ground air defense weapons. But since the intensity and effectiveness of this fire had increased substantially, the problems of organizing close fighter cooperation with other branches of aviation and the ground air defense weapons were added to those of improving the equipment, tactics and combat command in the sphere of the struggle for air supremacy.

FOOTNOTES

1. See: VOYENNO-ISTORICHESKIY ZHURNAL, Nos 5, 6, 1984.
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4. D. Stewart, "Vozdushnaya moshzh--reshayushchaya sila v voyne v Koreye"
[Air Power: The Decisive Force in Korea], Moscow, Izd-vo inostrannoy
literatury, 1959, pp 64, 280.
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6. INTERNATIONAL DEFENSE REVIEW, No 8, 1980, p 1209.
7. [Not in text]
8. AIR FORCE MAGAZINE, No 12, 1974, p 147.
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10. ORDNANCE, No 11-12, 1969, p 301.
11. IAR FORCE MAGAZINE, No 8, 1972, p 53.
12. INTERAVIA, No 11, 1973, p 1194.
13. NATO's FIFTEEN NATIONS, No 8-9, 1972, p 16.
14. WEHRKUNDE, September 1970, p 472.
15. ARAB REPORT AND RECORD, No 19, 1973, p 430.
16. FLIGHT INTERNATIONAL, No 3371, 1973, p 686.
17. Ibid., 16 October 1982, p 1109.
18. AVIATION WEEK AND SPACE TECHNOLOGY, 5 July 1982, p 16.
19. ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No 9, 1984, p 48.

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Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 9, Sep 85 (signed to press 23 Aug 85) pp 72-76

[Article by Col L. A. Zaytsev under the rubric "Scientific Reports and Information"]

[Text] Widely known among the Russian military leaders in the second half of the 19th and the beginning of the 20th Centuries who favored the transforming of the Russian Army in a spirit of bourgeois military reforms was the name of Gen M. I. Dragomirov.(1) In possessing profound knowledge of military affairs and an analytical mind, in his numerous works he was able to thoroughly examine a number of then urgent questions of military art, as well as pose and resolve certain problems of troop instruction and indoctrination.(2) As is known, M. I. Kalinin considered Dragomirov one of the "military authorities" and even referred to his statements on the role of moral strength in achieving victory over the enemy during the period of the Great Patriotic War.(3)

In shaping the views of M. I. Dragomirov a major role was played by the heritage of the great Russian general A. V. Suvorov to whom Dragomirov turned during all his military service.

However, in examining the military-pedagogical views of Dragomirov, one must bear in mind a definite contradictoriness in them. As an educated and progressive officer, he clearly saw all the weak aspects and failings of the Tsarist Army related to its technical and cultural backwardness, to the feudal-bureaucratic orders and conservatism of many officers. But, in being a representative of the ruling class and a convinced defender of the bourgeois-landowner system in Russia, Dragomirov was not a supporter of any fundamental changes in the army. He felt that the shortcomings existing in it could be eliminated by bourgeois reforms, by educational work and most importantly by reorganizing the troop training and indoctrination system in accord with the advice of A. V. Suvorov.

Of all the military figures in Russia at the end of the 19th and beginning of the 20th Centuries, Dragomirov stood out in his particular adherence to the Suvorov methods of troop training and using them in combat. He relied on Suvorov's authority in the struggle against the neglect of national traits in

military art and the infatuation of Prussian troop training methods. "...It would not hurt to remember...", he wrote, "the attitude of the great old man to Prussian drilling. Certainly he pointed out that he could teach the Russian man and be victorious with him; consequently, he understood how he must be led; but we fawn on foreign methods and do not want to know our own."(4) Dragomirov's accomplishment was the resurrection and dissemination of the then-forgotten legacies and admonishments of the great general as well as the publishing of the remarkable "Nauka pobezhdat" [The Science of Winning] in its authentic form.

The cornerstone of the military-pedagogical views of M. I. Dragomirov was the assumption that man is the main force in a war. The task of the commanders, he said, was, in keeping with the moral and physical development of the new recruit, to prepare from him a soldier by using indoctrination and instruction. Dragomirov endeavored to establish a troop training system which could "turn the new recruit into a soldier, that is, to specialize, without destroying the human in him."(5)

Dragomirov viewed the process of training the personnel as a complex one consisting of two main parts: indoctrination and instruction. Here he emphasized in his works that it was essential "in indoctrination and training to take into account the properties of the human will and mind."(6)

By **indoctrination** he understood an active process of influencing the soldier and as a result of this there should be developed: 1) "a feeling of duty brought to the point of self-sacrifice or a readiness to sacrifice oneself for helping comrades; fearlessness, resourcefulness and unswerving obedience to the will of the superior in everything concerning service"; 2) "the ability to endure all the hardships and deprivations of wartime without complaint and without rapid depleting of forces."(7)

By **training** Dragomirov understood the inculcating in the soldiers of that knowledge and skills which would provide: 1) "skillful action with one's weapons"; 2) "the ability to coordinate one's movements and actions with comrades"; 3) "agility in overcoming obstacles encountered in the field and the ability to use them for a respective shelter against enemy viewing and firing without depriving oneself of the possibility, however, of seeing and firing at the enemy."(8)

Under the conditions of the rapid development of long-range rifled firearms, the problem of the relationship of man and weapons came to the forefront. Dragomirov contributed much that was of value and progressive to its development. On the basis of generalizing the experience of the Austro-Italo-French (1859) and Austro-Prussian (1866) Wars, in the course of which he was directly on the front as an officer from a neutral country, he was able to formulate the thesis that the more advanced the means of armed combat are the greater the role and importance of man using these weapons on the battlefield.(9) Dragomirov sharply criticized the various "theorists" who asserted that the improvement of rifled weapons would irreversibly reduce man's role in armed combat. He showed that it was impossible to investigate weapons and the questions of their combat employment in isolation from the man who used these weapons.

Since the importance of the moral qualities of the fighters was very great in combat, their shaping, Dragomirov emphasized, should be a matter of constant concern for each officer. The victory, he said, will lie in the hands of that army in which the soldiers are permeated with a determination to achieve victory, even at the price of their own loss. Consequently, "moral energy in a soldier should be developed up to a degree of readiness of perishing oneself as long as the enemy perishes." (10) For achieving such conviction, a soldier must, in Dragomirov's opinion, possess primarily the high quality of patriotism. He asserted that "where a man loves his motherland he will love his unit; where as a consequence of this the common cause becomes his personal cause, where the insulting or failure of his motherland or his unit are a personal insult and a personal failure, here he does not hesitate to sacrifice himself for their good." (11) In the aim of instilling a feeling of patriotism and self-sacrifice in combat in the soldiers, he recommended using such methods as the solemn administering of the oath, the explaining of its importance and sense, the holding of talks about the historic past of the motherland and about the glorious feats of Russian soldiers and so forth.

In indoctrination Dragomirov gave great importance to military discipline which he considered to be based upon the maintaining of proper order in the troops and primarily the proper relations between superiors and subordinates. "Discipline," he said, "is a reciprocal question, that is, it is strong only where it exists not only from the bottom up but also from the top down, for the very law which imposes certain duties on the soldier also protects him from unjust violations and the superiors who allow themselves such violations are the violators of both the law and discipline." (12)

Dragomirov assigned a special place to indoctrinating steadfastness, tenacity, initiative, readiness for a helping hand and combat comradeship as well as to developing in the men a feeling of honor and loyalty to the colors. "In a respectable unit..." wrote Dragomirov, "everything can die for troop life and one thing remains unchanged and eternal...spirit and the colors, its material representative. A unit which keeps its colors in battle has kept its honor inviolable; a unit which has lost its colors is the same as the disgraced person who has not paid for his disgrace...a piece of material...the protection of which cost the lives of hundreds and possibly thousands of people...it is a holy thing...a holy in the direct and immediate sense of this word...." (13)

In speaking about the Dragomirov system of indoctrinating high moral and physical qualities in the soldiers in the course of combat training, one must not overlook the question of so-called "bayonet indoctrination" over which at that time heated debates arose. Dragomirov's adherence to "bayonet indoctrination" stemmed from his views on the ratio and role of man's mental and volitional qualities in military affairs. In particular, he asserted that "military affairs to a significant degree is more volitional than it is mental," (14) and that cold steel (the bayonet) corresponded more to the volitional aspect of a soldier while firearms (projectile) were more mental. Hence, Dragomirov asserted, for developing volitional qualities in a soldier it was essential to give preference to cold steel and to exercises with the bayonet (bayonet indoctrination). He could no more overcome the underestimating of new weapons and military equipment than he could completely

understand the importance of progress in the area of military affairs generally. For example, even after the Russo-Japanese War of 1904-1905, he continued to feel that new weapons did not substantially change tactics and that the outcome of combat in the ground troops in the future would be determined by the bayonet attack in close formation. From this stemmed the miscomprehension of the importance of having the infantry dig in under heavy enemy rifle and machine gun fire and the necessity of introducing in the troops machine guns, the firing of artillery from indirect positions and so forth.

The second major area of training a soldier was his instruction, asserted M. I. Dragomirov. The aim of instruction was seen by him in developing the soldier's firm skills of mastering the weapon and preparing the men for skillful and decisive actions in combat.

The military pedagogical system of Dragomirov included a number of training principles. In first place was the **principle of purposefulness**: **"the troops should learn in peacetime only what must be done in wartime."**(15) In accord with this principle, Dragomirov defined the importance of the subjects (sections) for the individual instruction of the soldiers in the following sequence: shooting (weapons training), fencing (the procedures of hand-to-hand combat), gymnastics and in last place drilling (drill instruction). Relying precisely on the principle of purposefulness, he insisted upon the use of such combat training forms as exercises with live cartridges and charges and deep attacks.

He considered important the **principle of systematicness (systemicness) and succession in instruction** demanding that they move from the simple to the complex, from the simple to the difficult, from the known to the unknown. He also demanded that instruction be organized on the basis of firm training plans and programs.

An important place was given to the **principle of a conscientious attitude toward military instruction** both on the part of the trainees and on the part of those instructing. At the basis of this principle lay the well known Suvorov rule: Each soldier should understand his maneuver. From the trainers this principle demanded a most progressive method in order to instill initiative in the trainees and develop their independence.

The **principle of firm assimilation** demanded the learning of a small amount of knowledge but thoroughly, that is, soundly; in the process of instruction one should move on to the study of new material only having made certain that the previous has been assimilated. The carrying out of this principle demanded the incorporation of a certain number of drills in the training process. And here Dragomirov warned that the necessary drilling should not be turned into harmful barracks drilling.

M. I. Dragomirov recommended in the training process to make as wide as possible use of the **principle of demonstration**, that is, to show in actuality what must be done, resorting to oral explanations only in the instance of actual necessity. He considered the correcting of trainee mistakes to be one of these necessary instances.

Dragomirov was decisively against the existing practice of the announced setting of inspections, justifying this by the fact that the success of instruction was determined by the work over the entire year and not by concentrating on a certain date for one or another subject of instruction.

In his works Dragomirov pointed out that the shortened time of active service for the soldiers and the greater complexity of their training process demanded an intensification of the training process. With long periods of service, the basic burden of instruction rested on the shoulders of the junior officers and re-enlisted personnel. Under the new conditions this fell on the officers. Previously in the army there were many teachers and few students but with the shortening of the period of service there were few teachers and many students. In this context, M. I. Dragomirov demanded that the officers constantly participate in the training of the soldiers. He wrote: "With such a situation one thing is true: if an officer will not do it then no one will."(16)

M. I. Dragomirov particularly emphasized the importance of the company commander's personal participation in the training of young soldiers (new recruits). He asserted that the company commander who, as a rule, had undergone the greatest service schooling, had a good knowledge not only of the provisions and requirements of the regulations, orders and instructions but also various instances of their practical application. Consequently, the company commander could instruct his soldiers on a higher level than others.

In defining the role and place of officers in the personnel training system, Dragomirov demanded a clear definition of the limits of activity for each, correctly assuming that if the commanders take over for subordinates and do their work, they can neglect their own job. "The battalion officer," he wrote, "cannot be four company commanders."(17)

Dragomirov not only theoretically backed up his views on troop indoctrination and training but also successfully carried them out. He succeeded in doing much in this area during the period of commanding the 14th infantry division which was marked by great combat capability in the Russo-Turkish War of 1877-1878, and then in the position of commander of the Kiev Military District. His "Uchebnik taktiki" [Textbook of Tactics] published in 1879 for more than 20 years served as the basic teaching aid in the General Staff Academy.

M. I. Dragomirov is rightly considered one of the founders of military pedagogics as a science, a great expert on the psychology of soldiers and a master of troop indoctrination and training. Many of his ideas in this area have not lost their pertinence at present.

The troop indoctrination and training principles worked out by Dragomirov to a definite degree were progressive for their times. However, they have been viewed outside the context of the sociopolitical development of the state and the existing patterns in the development of military affairs and without considering the nature of wars and the fundamental interests of the broad masses of people. The contradictoriness of Dragomirov's views, L. G. Beskrovnyy has pointed out, reflects the crisis in bourgeois Russian military thought at the end of the 19th and the beginning of the 20th Centuries. At

the same time, in his attempts to establish a new troop training system, M. I. Dragomirov in a majority of instances was ahead of his contemporaries. His efforts were aimed at indoctrinating the army in a spirit of the heroic traditions of the Russian people.

FOOTNOTES

1. Mikhail Ivanovich Dragomirov (20 November 1830 -- 28 October 1905) was a Russian military theorist and pedagogue and infantry general. He began military service in 1849. In 1856, he completed the General Staff Academy. In 1860-1869, he was an instructor and then a professor on the chair of tactics at the same academy. From 1869 through 1873, he was the chief of staff of the Kiev Military District. In 1873-1877, he was commander of the 14th Infantry Division. During the Russo-Turkish War of 1877-1878, he successfully directed the actions of the division's units in crossing the Danube at Zimnitsa and at the defense of Shipka. From 1878 he was the chief of the General Staff Academy. From 1889 through 1903, he was the commander of the Kiev Military District and from 1898 also the Kiev, Podolsk and Volynia governor general. In 1903, he was a member of the State Council. He was the author of numerous works on tactics, training and indoctrination of the troops.
2. The works of M. I. Dragomirov include: "Izbranyye trudy. Voprosy vospitaniya i obucheniya voysk" [Selected Works. Questions of Troop Indoctrination and Training], Moscow, Voenizdat, 1956; "Odnadtsat let. 1895-1905 gg" [Eleven Years. 1895-1905], Books I and II, St. Petersburg, 1909; "Zapiski taktiki dlya voyennykh uchilishch" [Notes on Tactics for Military Schools], St. Petersburg, 1866; "The Effect of the Spread of Rifled Weapons on Troop Indoctrination and Tactics," ORUZHENNYI SBORNIK, No 1, 1981; "Soldatskaya pamyatka" [Soldier Memorandum], St. Petersburg, 1888; "The Nature and Scope of Tactical Research," VOYENNYI SBORNIK, No 10, 1865; "Opyt rukovodstva dlya podgotovka chastey k boyu" [Experience of Leadership for Training Units for Combat], Parts I-III, 7th Edition, St. Petersburg, 1896; "Razbor romana 'Voyna i mir'" [An Analysis of the Novel "War and Peace"], Kiev, 1895; "Podgotovka voysk v mirnoye vremya (vospitaniye i obrazovaniye)" [Troop Training in Peacetime (Indoctrination and Education)], Kiev, 1906; "Discipline, Subordination and Respect for Rank", RAZVEDCHIK, No 176, 1894; "'Nauka pobezhdet' Suvorova. Sbornik originalnykh i perevodnykh statey M. Dragomirova" ["The Science of Winning" of Suvorov. Collection of Original and Translated Articles of M. Dragomirov], Vol II, St. Petersburg, 1881; "Uchebnik taktiki" [Textbook of Tactics], 4th Edition, Kiev, 1910; "14 let (1881-1894). Sbornik originalnykh i perevodnykh statey" [14 Years (1881-1894). A Collection of Original and Translated Articles], St. Petersburg, 1895 and others.
3. M. I. Kalinin, "Izbrannyye proizvedeniya" [Selected Works], Moscow, Politizdat, 1975, p 406.
4. M. I. Dragomirov, "Odnadtsat let. 1895-1905 gg.," Book II, p 528.

5. M. I. Dragomirov, "Izbrannye trudy. Voprosy...", p 610.
6. "14 let. 1881-1894...", p 135.
7. M. I. Dragomirov, "Izbrannye trudy. Voprosy...", p 19.
8. Ibid., p 10.
9. M. I. Dragomirov, "Uchebnik taktiki," Part II, p 2.
10. M. I. Dragomirov, "Izbrannye trudy. Voprosy...", p 612.
11. "14 let. 1881-1894...", pp 113-114.
12. M. I. Dragomirov, "Izbrannye trudy. Voprosy...", p 613.
13. "Sbornik originalnykh i perevodnykh...", Vol 1, p 475.
14. M. I. Dragomirov, "Izbrannye trudy. Voprosy...", p 603.
15. M. I. Dragomirov, "Uchebnik taktiki," Part II, p 24.
16. M. I. Dragomirov, "Izbrannye trudy. Voprosy...", p 188.
17. "Uchebnik taktiki" [Textbook of Tactics], Compiled by M. Dragomirov, St. Petersburg, 1879, p 425.

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MAIN IMPROVEMENTS IN ARTILLERY WEAPONS IN GREAT PATRIOTIC WAR

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[Article by Col (Ret) A. N. Latukhin]

[Text] On the battlefields of the Great Patriotic War, artillery was the main firepower of the Soviet Army. It demonstrated its complete superiority over the artillery of the armies of Nazi Germany and imperialist Japan not only in terms of the quantity of guns, mortars and rocket launchers involved in supporting combat (an operation), but also in terms of all types of artillery systems. This became possible due to the continuous improvement of artillery weapons during the war years. These were developed by increasing the caliber of the antitank cannons and mortars, improving the design and reducing the weight of artillery systems, increasing the rate of fire and range of the weapons, increasing the maneuverability and mobility of the artillery and developing more effective different types of artillery ammunition.

As is known, the Soviet Army at the start of the war was armed with different caliber field and antiaircraft artillery. As for the antitank artillery, this was represented only by the 45-mm cannon of the 1937 model. The situation was also exacerbated by the fact that the enemy had begun developing tanks with an armor thickness of 180-200 mm which the shell of the 45-mm cannon could not penetrate. For this reason, along with the modernizing of this weapon (increasing the barrel length and the weight of the charge), Soviet designers headed by Gen V. G. Bragin developed during the war years then unsurpassed antitank cannons with a caliber of 57 mm (the 1943 model) and 100 mm (1944 model). The 100-mm cannon was particularly successful. It combined the qualities of an antitank and corps piece (a firing range of 21 km) and surpassed the Nazi 88-mm cannon in terms of armor penetration capability and range of direct laying. At a distance of 500 m the gun pierced armor 160 mm thick.(1)

The design of the artillery pieces was also improved. Commissioned were simpler to manufacture monobloc barrels instead of the hooped barrels with a loose tube, the shapes of the parts were simplified and their number reduced, cast and welded designs were employed as well as pneumatic balancing gears which were more compact than spring ones.

In order to lighten the carriage and reduce the length of recoil, virtually all new weapons models were equipped with muzzle brakes. These made it possible to take up to 50 percent of the recoil energy in the round and in so doing substantially freed the recoil system and reduced the stress on the carriage.

Of important significance was the actual introduction of developing new models of guns by the method of mounting different caliber barrels on previously developed carriages. This to a significant degree helped reduce the time for designing artillery systems. For example, individual models of guns were developed in 20-30 days.(3) Thus, the design bureau headed by Gen V. G. Grabin skillfully and quickly carried out the task of developing the 76-mm divisional cannon of the 1942 model (the ZIS-2) by mounting the barrel of 76-mm caliber on a carriage for the 57-mm cannon of the 1941 model. The new cannon had a simpler carriage design, as instead of riveted box trails, tubular ones were used. And the employment of a muzzle brake and monobloc barrel in the design made it possible to obtain a lighter weight cannon in maintaining the firing range of the initial model (the 76-mm divisional cannon of the 1939 model). The cannon was more maneuverable and convenient to use. In order to adapt it to direct laying against tanks, the sight mechanisms were located to the left, the sight was made suspended upon the gun and automatic cocking of the striker was introduced in opening the breech.

In developing the corps 152-mm howitzer with high maneuvering qualities, lower weight and greater simplicity in production and operation, the design bureau under the leadership of Gen F. F. Petrov in 1943 proposed mounting the barrel of a 152-mm howitzer of the 1938 model on a carriage of the 122-mm howitzer of the 1938 model. Here the new weapon had a monobloc barrel with a muzzle brake. The design of the carriage was also partially altered. The artillery system developed in this manner, in maintaining the range of fire of 12,390 m, weighed 500 kg less than a howitzer of the 1938 model. This howitzer was put into production in 6 weeks. On the front it demonstrated high combat qualities and was recognized as one of the best models of artillery systems during the war years.

In 1943, there were also changes in the weapons of the regimental artillery. The production complexity and insufficient maneuverability of the 76-mm cannon of the 1927 model required the development of a new regimental gun. For this reason the mounting of the barrel of 76-mm caliber on the carriage of the 45-mm cannon of the 1942 model produced the new regimental 76-mm cannon of the 1943 model which was marked by production simplicity and greater maneuverability. It was 120 kg lighter and had a 48° greater angle for horizontal shelling.

The development of antiaircraft artillery in the course of the war was carried out by modernizing the automation of loading and executing the round and the sight equipment in the aim of increasing the effectiveness of fire at high-speed aircraft and by improving the antiaircraft fire control equipment (AAFCE) using radars. In 1944, a new powerful antiaircraft cannon, the KS-1 with a caliber of 85 mm was developed and this represented the basic 85-mm antiaircraft weapon of the 1939 model which was improved in the war years. In it the barrel with a loose tube was replaced by a monobloc barrel and the

inertial-mechanical, semi-automatic breech mechanism was replaced with an automatic duplicate breech. A special lever was incorporated for recocking the striker. The cannon was equipped with a mechanical barrel setter and an automatic counterrecoil governor and had a gun shield. Its effective ceiling was increased from 9,000 to 12,300 m.

By this time more advanced antiaircraft fire control equipment was developed, the PUAZO-3 and PUAZO-4.

The design of mortars was also improved. In 1943, the battalion 82-mm, the 107-mm mountain and 120-mm regimental mortars were modernized,(5) and the 160-mm divisional mortar was commissioned. Here the range of the 82-mm mortar was increased to 3,040 m, the rigidity of its bipod was increased and the wheeled mounting was made not removable. The further development of the 107-mm mortar made it possible to increase its range of fire from 5,000 to 6,300 m. In the 120-mm mortar the firing device was improved, the stroke of the shock absorber was increased and the bipod simplified.(7)

The rocket artillery in the war years developed particularly intensely. Along with improving the design of the existing combat vehicles and increasing the power of the shells, the launcher units were also improved. In particular, in 1944, the rocket artillery units and formations began receiving the more mobile BM-31-12 combat vehicles, the rate of fire of which significantly surpassed the M-30 launching frames which were developed in 1942.

The increased rate of fire and range of the weapons were one of the major areas for improving artillery weapons in the course of the Great Patriotic War. The increased rate of fire was achieved by mechanizing and automating the process of loading and getting off the round, extracting the cartridge, as well as the rapid and smooth work of the gun crew.

The use of semiautomatic breech mechanism was characteristic for antitank artillery. Its closing, the ejecting of the cartridges and the compressing of the springs were carried out by the energy of the powder gases. After manual loading the springs were released and closed the breech.

As is known, one of the elements of a gun's power is its **range of fire**, that is, the ability to hit a target located a significant distance away. The range of fire was viewed as an important condition for the continuous support of the troops with artillery fire (without a frequent change of firing position) in the course of an offensive. This made it possible to hit the enemy on the defensive, starting from the distant approaches, and made it possible to maneuver artillery fire along the front in the aim of covering the flanks and boundary areas, as well as its massing against most important objectives (targets). During the war the range of fire of the guns and the battalion artillery increased by almost 90 percent, for the regimental artillery by 81 percent and the divisional artillery by 40-50 percent.(8)

In the aim of increasing the effective fight against tanks, there was a desire first of all to increase the muzzle velocities of the conventional, armor-piercing and subcaliber shells, that is, to increase the ballistics of the antitank cannons and provide the greatest possible range of direct laying.

This was the basic path to improving guns with a flat trajectory. Here incidentally another problem was solved, the range of fire of the fragmentation-high explosive shells was increased. For example, our 100-mm field cannon of the 1944 model (BS-3) was developed basically as a powerful antitank weapon for combating the Nazi heavy tanks of the "Tiger" and "Panther" class. However, in having a high shell muzzle velocity (up to 900 m per second), when necessary it could hit targets with fragmentation-high explosive shells at ranges up to 20 km.

As for the high and special power artillery as well as railroad artillery, here the questions of range of fire combined with the power of the high explosive shells became crucial.

The maneuvering nature of operations required increased **mobility of the artillery**. During the war there was a broad tendency to reduce the weight of the weapons by employing muzzle brakes. As for the means of traction for towing the guns, by the end of the war, mechanical traction held the dominant position. Wheeled and tracked artillery tractors could develop a relatively high speed over roads and in a majority of instances possessed completely acceptable cross-country capability on rugged terrain. Horse-drawn traction in the artillery by the war's end remained only in battalion and regimental artillery and was also employed under specific conditions, for example, in the mountains.

The best means for protecting the guns against dynamic overloads in towing by tractors was considered to be the use of springing and the fastening down of individual mechanisms in a march position. An accomplishment of the Soviet artillery designers was that all our new guns developed in the prewar years and during the war had a spring suspension which made it possible to tow the guns at the same speeds as the tractors could reach. In the 100-mm cannon of the 1944 model, the most advanced type of suspension was employed, torsion, and this provided a noticeable savings in weight and made the design more compact and dependable. Suspension was also introduced in the 120-mm mortar for towing on the hitch of a motor vehicle.

During the war the firing maneuverability of the artillery increased (primarily the speed of opening fire and flexibility). For example, for shifting the divisional cannons and howitzers from a march position to combat it took an average of 1-1.5 minutes. Carriages with extension plates made it possible to have high angles of horizontal shelling (up to 60°) and vertical laying (for cannons from -5° to +45° and for howitzers from -3° to +65°). During the war years the development of highly mobile self-propelled artillery mounts (SAU) was a qualitatively new step in the development of artillery. Depending upon the power, the amount of armor and weight, the self-propelled weapons were divided into light, medium and heavy. They correspondingly carried out the mission of escorting either infantry, tanks or both together, fighting against enemy antitank artillery, its tanks, assault guns, and were also used in destroying permanent and log-earth structures.(9)

A characteristic feature in the development of Soviet self-propelled artillery was the use of the undercarriage of modern tanks and the employment of the most powerful artillery pieces. For example, on the base of the T-34 medium

tank, the SU-85 and SU-100 were developed, the SU-152 on the KV heavy tank and the ISU-122 and ISU-152 on the basis of the IS heavy tank.

The increased effectiveness of the action of ammunition of all types and purposes was one of the areas of developing artillery equipment during the war.

In Soviet ammunition there was an optimum ratio between the weight of the explosive charge and the thickness of the casing walls. For this reason, our fragmentation shells were marked by high effectiveness. During the war, many elements of ammunition were improved including fuzes, the means for igniting the powder charges, explosives and casings. The shortage of nonferrous metals, in particular brass, necessitated converting production to sufficiently strong steel casings. In a number of instances they began introducing special flash reducers in the powder charges for reducing the give-away action of the flame in firing.

Special attention was paid to armor piercing shells. Along with the basic types of such shells used in artillery after World War I, other new types appeared including the subcaliber (1943 model) and shaped-charge (1942 model). **Subcaliber shells** at ranges of 500-1,000 m possessed greater armor-piercing capacity than conventional armor-piercing shells. This was achieved chiefly by increasing their muzzle velocity which rose up to 1,000 m per second (the 57-mm cannon of the 1943 model).

The shaped-charge shells in terms of their design differed fundamentally from the conventional armor-piercing and subcaliber ones. They pierced tank armor not as a consequence of the powerful blow but rather exclusively due to the directed action of the explosive charge. An essential condition for the effective action of the shaped-charge shells was the relatively low muzzle velocity and consequently speed at the target. The positive qualities of the shaped-charge shells were: high armor-piercing capacity, cheapness and simplicity of manufacture.

Rocket shells also underwent significant development during the war years. By mid-1942, two high-explosive shells had been developed: the M-20 (a caliber of 132 mm and a charge weight of 18.4 kg and greatest range of 500 m) and the M-30 (caliber of 300 mm, charge weight of 28.9 kg and greatest range of 2,800 m). These shells possessed rather strong high-explosive action but also had great dispersion.

In 1943, the M-31 shell was tested and commissioned and this had a destructive force equal to the M-30 shell, but its range of fire was 1.5-fold greater and reached 4,325 m.

The problem of improving grouping accuracy to a certain degree was solved in 1944 by introducing tangentially placed openings and special L-shaped adaptors for ensuring the spinning of the shell relative to the longitudinal axis.(10) This made it possible to improve the grouping of the M-13 and M-31 shells by 3-6-fold. These were named the M-13UK and M-31UK.

The improvement in artillery weapons during the years of the Great Patriotic War provided a constant increase in the power of artillery fire and told favorably on the methods of the combat employment of this branch of troops.

During the postwar period, all types of artillery have become more advanced. In the course of modernizing the existing artillery systems and developing new ones, significant consideration has been given to the experience of the Great Patriotic War and the modern demands on them.

FOOTNOTES

1. "Sovetskaya Voyennaya Entsiklopediya" [Soviet Military Encyclopedia], Moscow, Voenizdat, Vol 1, 1976, p 306.
2. [Not in text]
3. "50 let sovetskoy artillerii" [Fifty Years of Soviet Artillery], Leningrad, Izd. Artilleriyskoy akademii imeni M. I. Kalinina, 1968, p 86.
4. [Not in text]
5. [Not in text]
6. The low-powered 50-mm mortars were taken out of use in the course of the war.
7. G. Ye. Peredel'skiy, A. I. Tokmakov and G. T. Khoroshilov, "Artilleriya v boyu i operatsii" [Artillery in Combat and an Operation], Moscow, Voenizdat, 1980, p 12.
8. "Voyenno-tekhnicheskiy progress i Vooruzhennyye Sily SSSR" [Military Technical Progress and the USSR Armed Forces], Moscow, Voenizdat, 1982, p 139.
9. G. Ye. Peredel'skiy, et al., op cit., pp 15-16.
10. "Raketchiki" [Missile Troops], Moscow, Izd-vo DOSAAF, 1979, p 53.

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IMPROVED ORGANIZATION OF RAILROAD TROOPS IN GREAT PATRIOTIC WAR

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[Article by Hero of Socialist Labor, Col Gen M. K. Makartsev, chief of the Railroad Troops]

[Text] Rail transport during the years of the Great Patriotic War was the basic means of delivering combat equipment, ammunition, supplies, food and other freight to the operational army as well as for the rapid regrouping of troop formations. The continuous operation of this type of transport depended largely upon the effective use of the Railroad Troops which were entrusted with rebuilding the railroads behind the advancing units, operating the head railroad sections and building new ones, increasing the capacity of the railroad lines, blocking railroad lines in the course of defensive operations and their technical cover in the frontline area.

Prior to 1941, the Railroad Troops consisted of individual regiments and battalions and the Separate Corps of Railroad Troops of the RKKA [Worker-Peasant Red Army] which included five brigades. For carrying out construction, reconstruction and obstruction work, they were given excavators, roller conveyors, scrapers, powerful PK-18.5 and PK-45 cranes and other equipment. The railroad units also received track wreckers of the "Chervyak" type, shunting engines, line inspection trolleys, electric welding units and water supply equipment.

The reorganization of the Railroad Troops started in the spring of 1941. Railroad units which were specialized in types of work (track, bridge, mechanization, operational and so forth) began to be established and these were made into separate railroad brigades(1) which were under the Military Communications Service of the NKO [People's Commissariat of Defense]. The mobilizing of the Railroad Troops with the outbreak of war was to be carried out in the permanent positions of the units. The Separate Corps of Railroad Troops was not to be deployed, as it already had a wartime TOE structure.

Unfortunately, it was not possible to fully reorganize the Railroad Troops by the start of the Great Patriotic War. This was completed only in July 1941. Here the organized formations and units were brought up to strength basically

by insufficiently trained recruits. The new formations did not always have the necessary TOE railroad equipment.

With the outbreak of hostilities, the Railroad Troops in the border military districts did not sufficiently effectively carry out the task of destroying the railroads (particularly to a great depth). This was explained by the shortage of personnel and explosives (chiefly delayed-action mines). Thus, the regulation "Chervyak" track wrecking machine was virtually unusable for destroying track with heavy type rails. The other available forces and equipment were far from fully utilized. The commanders of the all-arms field forces did not always promptly give orders to prepare obstructions and put them into use. There was no cover for the objects to be destroyed by field troops.(2) The railroad troops destroyed the railroad installations often under enemy fire and suffered unjustifiable losses. For this reason, the Deputy People's Commissar of Defense, Lt Gen A. V. Khrulev, in a telegram to the chiefs of staff of the fronts of 29 August 1941 pointed out that the railroad units "in fighting to the last minute, are suffering high casualties and in being cut off, are forced to abandon their railroad equipment to the enemy." This document emphasized that the railroad units must be used in the work of destroying and rebuilding the railroads in organizing wherever possible a cover for their work using subunits of field troops.(3) Sometimes, due to the difficult operational situation, along with carrying out the tasks of destruction, technical cover (eliminating destruction, fires and so forth), reconstruction and construction of the railroads, the railroad formations and units upon orders of the army commanders, defended individual sections of the front. For example, subunits from the 28th Separate Railroad Brigade in November 1941 closed a breach in the defenses of the 12th Army of the Southern Front on the approaches to Voroshilovgrad. For valor shown in the battles against the Nazi invaders, for steadfastness, courage, high discipline and organization, by the Order of the NKO of 28 April 1942, the formation became the 1st Guards Separate Railroad Brigade.(4) For 6 months (from September 1941 through February 1942), a significant section of the coast of the Gulf of Finland was successfully defended by the 9th Railroad Brigade of the Leningrad Front. The railroad troops heroically fought the enemy at Fastov, Kiev, Odessa, Kremenchug and in many other areas.(5)

The counteroffensive by the Soviet Army at Moscow, Rostov and Tikhvin confronted the Railroad Troops with a new task, of shifting from destruction to rebuilding sections of railroad on enemy-liberated territory. Initially this was carried out unsatisfactorily. The average rate of reconstruction was 2.5-3.5 km a day.(6) Such low indicators were due primarily to the great destruction on the roads, the small number of Railroad Troops, the harsh winter conditions, a lack of experience, a shortage of reconstruction materials and bridge elements as well as the imperfect technical equipping and the poor organizational structure and system for the command of the Railroad Troops. The railroad brigades did not have TOE subunits for reconnoitering the railroads and for this reason data on the state of the latter were collected slowly and often were unreliable. Moreover, the combat zones of the armies did not always rigidly conform to the railroad sectors. As a consequence of this the subordinating of the railroad formations to the VOSO [military railroads] chiefs of the field forces was ineffective. The VOSO bodies of the front also were unable to effectively lead the reconstruction

work, as they did not have the necessary physical plant and equipment. In addition to the railroad troops, reconstruction of the roads on the railroad sections also involved special reconstruction formations and repair-construction organizations of the NKPS [People's Commissariat of Railroads]. It was essential to eliminate this organizational isolation of all these forces.

On 3 January 1942, the GKO [State Defense Committee] in the Special Decree "On the Reconstruction of Railroads" entrusted leadership and responsibility for rebuilding the railroads to the NKPS and all the Railroad Troops under the NKO were turned over to the NKPS. The decree also envisaged an increase in the number of the Railroad Troops.

Within the NKPS the Main Directorate for Military Reconstruction Work (GUVVR) was established and within the latter there was the Directorate of Railroad Troops with a staff. On the fronts in the aim of increasing the scope of reconstruction work and improving supply for the Railroad Troop units with reconstruction materials, equipment and mechanisms, directorates of military reconstruction and obstruction work (UVVR) were organized and head bases for reconstruction materials were established. The chief of the UVVR was under the military council of the front and for special questions under the chief of the GUVVR.(7) The special reconstruction formations operating in the zone of a front were headed by a head reconstruction section which was under the chief of the UVVR of the front. These were converted to the status of troop units and the effect of the regulations of the Soviet Army was extended to their personnel. The chiefs of the special formations temporarily received the disciplinary rights in accord with the Disciplinary Regulations.(8) The operational railroad regiments were not put under the GUVVR and UVVR. They were subordinate to the chiefs of the military-operational directorates of the fronts. Overall leadership over the reconstruction and operation of the railroads of a front was entrusted to a representative of the NKPS. At the same time, instructions were issued to the commanders of the fronts concerning their full responsibility, on equal footing with the representatives of the NKPS, for the obstruction and reconstruction of the front's railroads. The railroad troops and special formations of the NKPS were prohibited from being used outside their specific purpose.

The supply of the Railroad Troops with reconstruction materials, bridge elements and railroad equipment was assigned to the NKPS. The supply of all other types of materiel as well as the providing of Railroad Troops with personnel were carried out through the NKO on the general grounds with the other branches of Ground Forces.

In February 1942, the positions of representatives of the NKPS were abolished. the chief of the UVVR was legally subordinate only to the chief of the GUVVR of the NKPS, however actually he was subordinate also to the military council of the front. In accord with the orientation to forthcoming tasks on the fronts, the NKPS determined the amount of resources to be made available to each front and set the quotas for the UVVR for rebuilding the railroads. When necessary the latter could be adjusted in the process of coordinating the railroad reconstruction plan with the command of the front.

Turning over all the Railroad Troops to the NKPS ensured a unity of command of the men and equipment to be involved in rebuilding the railroads, it improved technical leadership over reconstruction work and encouraged the mobilizing of the human and material resources of the NKPS to carry out the tasks being implemented by the Railroad Troops to support the operations. This led to a gradual rise in the rate and quality of road reconstruction.

The experience of the rebuilding of the railroads in 1941-1942 showed that in carrying out this task the Railroad Troops played the leading role in the area of a front, since reconstruction work necessitated not only a military organization but also frequently involved combat actions. The special formations of the NKPS, as a rule, had been placed under the railroad brigades. For this reason, at the start of 1943 the head reconstruction sections were eliminated because they were no longer necessary.

With the increased scope of the offensive operations by the Soviet Army, the need grew for the reconstruction and construction of railroads and the TOE size of the Railroad Troops increased. Command of the Railroad Troops as improved. This was aimed at increasing the role of the command of the fronts in planning Railroad Troop operations for the transport support of front-level operations. Thus, in particular, it set the routes to be reconstructed, the times for opening train traffic and the capacity of the sections. Only in individual instances were tasks given to the Railroad Troops directly by the NKPS GUVVR in accord with the needs of supporting strategic offensive operations. The plan for reconstructing the railroads of a front, after approval by the VOSO chief, was approved by the front commander.

In the second period of the war, the organizational structure of the Railroad Troops was also improved. Thus, in 1943, a service was established for supplying construction materials and equipment, and the logistical support sections of the UVVR were strengthened. In the headquarters of the brigades, a section appeared for logistical supply. In the units dumps of building materials and equipment were established. This strengthened the physical plant for reconstruction and obstruction work.

In February 1943, the GKO approved the TOE for a standard railroad brigade. All the brigades of the former Separate Corps of Railroad Troops were converted to these. Such a brigade included: the brigade headquarters, four track battalions, one bridge battalion, one mechanization battalion and one operational company. All the track battalions included teams for reconnoitering the condition of the railroads. Nevertheless, in carrying out the work at first the railroad units encountered great difficulties in rebuilding line communications, in the equipment for the signaling, centralization and blocking system and water supply. The reconstructing of communications installations and water supply facilities initially was to be entrusted to special repair formations of the NKPS, the communications and water repair teams. However, they were unable to fully carry out these tasks. For this reason, in each brigade over the year initially a company for communications reconstruction was additionally organized and later on in its stead a battalion. Each mechanization battalion included a company for the reconstruction of water supply and the number of operational companies was increased. Due to these changes, a railroad brigade acquired the capacity

independently to carry out all types of work on a railroad section and even on a separate railroad route. Considering the specific amount of work and the time for completing it, a brigade could be reinforced with special NKPS formations.

The rebuilding of bridges remained a bottleneck. They frequently limited the opening up of traffic on a railroad section. For this reason for increasing the rate of reconstruction work, changes were incorporated in the organizational structure of the units carrying this out. These consisted of incorporating a bridge company, instead of a third track company, in the TOE of the reconstruction battalions which were entrusted with the reconstruction of small bridges and pipelines.

Experience showed that the enemy destroyed virtually all medium and large bridges. The rate of their reconstruction depended largely upon the prompt procurement of the necessary materials and elements. For this reason the procurement companies of the bridge battalions, due to the increased amount and complexity of the work, were unable to fully handle the procurement and preparation of bridge elements. Separate carpenter battalions were organized consisting of four carpenter companies and for the assembly and placement of heavy span structures, individual lifting crane companies were organized and these had railroad cranes with a capacity of 18.5 and 45 tons. The bridge battalions consisting of three uniform bridge companies were assigned only to the reconstruction of bridges.

Specialization in the individual types of work also required the establishing on the front of a separate operations railroad brigade and narrow-gauge railroad operational regiments. Changes were also made in the organization of the operations companies. Within the Railroad Troops separate construction railroad battalions and separate motor transport battalions were organized.

The organizational structure of the Railroad Troops as of 1943 proved effective and was kept until the end of the Great Patriotic War. The high skill of the personnel made it possible for the same unit, regardless of the situation, to carry out the tasks of reconstruction, technical covering, construction and obstruction of the railroads. When necessary, the track battalions were capable of rebuilding medium and even large bridges while the bridge battalions could repair the track and communications lines.

Non-TO subunits were established for carrying out individual tasks. Thus, for increasing the pace of ground reconnaissance and for clearing mines off the routes, battalion technical reconnaissance teams were brought together into composite brigade reconnaissance detachments and the mine demolition platoons of the battalions were made into composite mine-clearing detachments.

In the course of the war the technical equipping of the Railroad Troops was improved. Light pile drivers with diesel hammers began to be widely employed for sinking pilings. Several designs of high-powered jib cranes were developed on the fronts for placing span structures. In the course of reconstruction work, extensive use was made of cableways, powder hole drifts for making holes in rail webs, saw frames, electric and pneumatic tools, electric winches, pneumohydraulic jacks as well as equipment for gas and

electric cutting of metals. The number of mobile compressors, electric and oxygen plants was increased. A majority of the equipment and tools was manufactured by the Railroad Troops themselves in their central and front parks, at the front bases and in the shops of the units.

As a result of the improved structure and better equipping of the Railroad Troops, the better control of them and better organization of reconstruction work, due to the rich practical experience acquired by the command and the personnel in the most efficient use of the available resources, their successes were multiplied in the course of the war. The average rate of rebuilding the railroad routes with an average amount of destruction by the end of the war had risen to 10-12 km a day and for respiking up to 25-30 km.(9) The bridge units also achieved high rates of reconstruction. For example, the railroad bridge at Kiev across the Dnieper some 1,059 m long was built in 13 days at a rate of 81.5 linear m a day.

During the years of the Great Patriotic War, the Railroad Troops, together with the special formations of the NKPS, rebuilt and built around 120,000 km of main, secondary and station track, 2,756 large and medium bridges, they laid around 71,000 km of communications lines, rebuilt 2,345 water supply stations, 182 steam locomotive depots and 7,990 stations and sidings, and deactivated and destroyed more than 2 million mines and landmines.(10) They provided the operational army with dependable railroad communications and honorably carried out their duty to the motherland.

The experience gained by the Railroad Troops during the Great Patriotic War has not lost its importance at present. New equipment has significantly increased the power-to-labor ratio of the Railroad Troops, the pace of reconstruction work has increased by many fold, however the combat experience gained in the struggle against the Nazi invaders and Japanese militarists as before remains the basis for the combat training of the Railroad Troops under present-day conditions.

FOOTNOTES

1. "Sovetskaya Voyennaya Entsiklopediya" [Soviet Military Encyclopedia], Moscow, Voenizdat, Vol 3, 1977, p 322.
2. K. P. Terekhin, A. S. Taralov and A. A. Tomashevskiy, "Voyny stalnykh magistralей" [Soldiers of the Steel Mainlines], Moscow, Voenizdat, 1969, p 98.
3. TsAMO SSSR [Central Archives of the USSR Ministry of Defense], folio 208, inv. 33969, file 3, sheets 47-48.
4. "Zheleznodorozhnyye voyska na sluzhbe Rodine" [The Railroad Troops in Service of the Motherland], Moscow, Voenizdat, 1981, p 31.
5. "Sovetskiy tyl v Velikoy Otechestvennoy voyne" [The Soviet Rear in the Great Patriotic War], Book 2, "Trudovoy podvig naroda" [The Labor Feat of the People], Moscow, Mysl, 1974, p 231.

6. Ibid., p 233.
7. "Zheleznodorozhnyye voyska na sluzhbe...", p 35.
8. TsGANKh SSSR [Central State Archives of the USSR National Economy], folio 1884, inv. 38, file 176, sheet 121.
9. K. P. Terekov, et al., op. cit., p 231.
10. S. S. Kosovich and A. M. Filimonov, "Sovetskiye zheleznodorozhnyye" [Soviet Railroad (Troops)], Moscow, Voenizdat, 1984, p 205.

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REVIEW; ZHILIN VOLUME ON BUILDING ARMY OF NEW TYPE

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[Review by Doctor of Historical Sciences, Col P. P. Skorodenko of the book "Stoitelstvo armii yevropeyskikh stran sotsialisticheskogo sodruzhestva (1949-1980)" (The Organizational Development of the Armies in the European Socialist Commonwealth Countries (1949-1980)), Editor-in-Chief P. A. Zhilin and leader of the author collective A. V. Antosyak, Moscow, Nauka, 1984, 312 pages]

[Text] Under present-day conditions, there is growing urgency for research and study of the problems of military organizational development both in our nation and abroad. There is a particularly heightened interest in the problems of the founding and strengthening of the socialist armies in the context of the 30th anniversary of the founding of the Warsaw Pact which is being celebrated in the current year. The publishing of the book "Stroitelstvo armii yevropeyskikh stran sotsialisticheskogo sodruzhestva (1949-1980)" [The Organizational Development of the Armies in the European Socialist Commonwealth Countries (1949-1980)] prepared by an author collective has made a substantial contribution to investigating these questions. The book deals with the history of the organizational development of the new type armies in Bulgaria, Hungary, the GDR, Poland, Romania and Czechoslovakia and examines the present-day problems of their development.

The book consists of an introduction, seven chapters, a conclusion and a bibliography. The first chapter sets out the historical conditions and the military-political situation in the world and establishes the objective necessity of founding and strengthening the armed forces in the socialist countries of Central and Southeast Europe as well as the formation and improvement of the Warsaw Pact. Of great importance for elucidating the principles on which military organizational development is founded in the socialist countries are the theses contained in the first chapter of the book concerning the elaboration of the theoretical bases for establishing and developing the armed forces of a socialist state as done by V. I. Lenin, the CPSU and the fraternal communist and workers parties. "The determinants in the general system of principles of military organizational development in a socialist society," the book emphasizes, "are sociopolitical ones. These disclose the social make-up of the armies and express its main features and

traits. These include the principles of party leadership, the class nature of an army, the unity of the army and people, the conscious execution of military duty and proletarian internationalism. The principle of party leadership of the armed forces is the leading one" (p 30).

The subsequent six chapters investigate the process of the establishment and development of the socialist armies in the fraternal Warsaw Pact countries. In each instance the authors establish three periods in their development. The first encompasses the period of building the foundations of socialism, the second is the completion of the creation of socialist principles and the third is the transition to the construction of developed socialism. Such an approach to an analysis of military policy is in full accord with the Leninist thesis that the organizational development of a new type army should be carried out in a spirit of overall state construction. Here it must be emphasized that in focusing reader attention on the general development trends inherent to all the armies of the socialist states, the authors of the work at the same time also bring out the particular features related to the conditions of the rise and development of the armed forces in the fraternal countries. Of particular interest in this context are the assessments contained in the corresponding chapters for the role of the armies during the period of the decisive struggle against the intrigues of the counterrevolution, as has occurred in the GDR, Hungary, Czechoslovakia and Poland. The book provides not only a clear notion of the events which occurred but also makes it possible to more profoundly understand the very essence of the process of turning the fraternal armies into a dependable support for the socialist system in their countries.

In these chapters a central place is held by an analysis of the activities of the communist and worker parties in the fraternal countries to strengthen their leading role and increase the influence on all aspects of the organizational development of the armed forces. The reader will find many interesting facts concerning party construction, the development and improvement of the structure, forms and methods of the work of the army political bodies and party organizations, on the growth of the party stratum in the officer corps, and on the improvement in party political work and the ideological-political indoctrination of the personnel.

The authors of the monograph have clearly shown that with the establishing of the Warsaw Pact, a qualitatively new and most fruitful stage has arrived in the organizational development of the national armed forces in each of the fraternal countries.

The book thoroughly brings out the importance of the use of the experience of the organizational development of the USSR Armed Forces by the fraternal states. In creatively applying this under the specific historical conditions of their countries, the party, state and military leaders have thereby enriched Marxist-Leninist theory and practice for the organizational development of the new type armed forces.

From the content of the book one can draw the valid conclusion that due to the constant concern of the communist and worker parties and the governments in the socialist commonwealth states for their armed forces, the organizational

structure of the armed forces has been constantly improved, the technical equipping, the combat and operational training of the troops and navies have increased, the number of command, political and engineer-technical personnel has risen, while the content of party political work and the patriotic and international indoctrination of the personnel has been enriched. The selfless international help of the Soviet Union has played and continues to play a major role in carrying out these tasks. As a result, the combat potential of the national and Joint Armed Forces of the Warsaw Pact states has increased significantly, and their readiness has risen to jointly defend the revolutionary victories of the fraternal peoples against any encroachments by imperialism.

The monograph has a fundamental scientific basis. The authors have drawn widely on documents and materials from the congresses of the fraternal communist and workers parties, the plenums of their central committees as well as major monograph works by historians and military scientists from the fraternal countries. This has made it possible to substantially increase the ideological and theoretical level of the research.

Among the merits of the book one must mention the presence of a sound scientific reference system in it. In understanding the content of the reviewed work, the readers will be given definite aid by the diagrams showing the organizational structure of the fraternal armies and the superior bodies of their command. However, it must be pointed out that not all the diagrams given in the book are correct. Thus, in the third chapter on page 107, a diagram is given for the organization of the Hungarian People's Army as of 1948, although the book encompasses the period from 1949 through 1980. Naturally, this diagram to no degree reflects the present state of the Hungarian People's Army which now possesses not only ground forces but also aviation and air defense troops.

As is known, the history of the founding and present development of the armies in the socialist commonwealth countries are a subject of acute ideological struggle. Bourgeois ideologists, contrary to objective facts, have falsified the leading role of the communist and workers parties in the organizational development of the armed forces, they distort the functions of the socialist armies, they play down the socioclass contradictoriness of socialist and bourgeois armies and so forth. The monograph contains a large amount of persuasive facts and arguments which unmask these and similar bourgeois falsifications. It possesses rich material which can be effectively used in counterpropaganda work.

The pages of the book call for increased vigilance against the growing aggressive actions of the imperialist reaction, for increased combat readiness and for a stronger defensive alliance among the friendly armies. It can provide substantial aid in the international indoctrination of the men.

The monograph is the result of profound scientific historical research on the urgent problems in the organizational development of the armed forces of the socialist states. One can be certain that it will gain an interested group of readers, primarily among military pedagogues, lecturers and propagandists.

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